# THE BUILDER

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SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION:—IN THE MARKET PLACE OF BRUGES; HÔTEL DE VILLE, BRUGES; TOWER OF ST. MARTIN, YPRES, AND HÔTEL DE VILLE, DAMME; THE SKIPPERS' HOUSE, GHENT, AND TIMBER GABLE, YPRES. FROM SKETCHES BY MR. W. CURTIS GREEN.

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## *The Rebuilding of the Venice Campanile.—II.*

BEARING in mind the terms of their appointment, the Commission proposed to rebuild the shaft of the campanile in brick as before, and having completed the foundations were prepared to commence erecting the superstructure, for which ample supplies of bricks had been made by the municipality in an establishment on the Fondamento della Pallada.

But about that time—in the early part of 1906—the voice of criticism began to be heard to such an extent that work was suspended by request of the municipal council, by whom a Technical Commission was appointed to inquire into the validity of the objections raised.

One of the points for consideration referred to the quality of the materials employed up to that date and selected for use thereafter. It was suggested that the composition of the cement and the character of the sand were unsatisfactory, that the bricks contained an excessive proportion of sulphates, and that the efflorescence on the surface of brickwork in Venice was a feature pointing to the undesirability of brick as a material of construction. After due inquiry the Technical Commission reported that all the materials chosen were of suitable character, and that if found capable of passing the tests prescribed in the same document there would be no reason for fearing that they would detract from the safety of the new structure.

Efflorescence in itself is certainly objectionable on account of its unsightly appearance; and, if excessive, because the crystallisation of earthy salts in mortar and brick may tend to cause disintegration akin to that resulting from the freezing of moisture. Brickwork has been employed in districts bordering the Adriatic for ages past with generally satisfactory results, and it has been suggested that the efflorescence usually occurring on the face of new brickwork in Venice is gradually washed away by the agency of the warm rains, and thus aids the formation of that outer coating or bloom which in a measure imparts the aspect of age. This argument strikes us as being somewhat in the nature of special pleading, but from the report of the Technical Commission it may be inferred that the quality of the bricks was found to be satisfactory from the artistic as well as from the structural standpoint.

Other matters criticised were the method adopted for extending the foundations, and the higher level of the base above the surface of St. Mark's-square. In each case the plans of the Commission were fully approved. Two modifications however, were made in the designs relating to the reconstruction of the shaft. One was a slight alteration in the section of the interior walls, and the other was the recommendation that beneath the successive flights of stairs arches should be added similar to those under the spiral inclined plane, serving the purpose of stairs in the original structure.

Soon after the report of the Technical Commission had been adopted by the municipal council the work of rebuilding—which had been interrupted for the best part of a year—was actively resumed. In order to facilitate comparison of the old and the new campanile we give in Fig. 2 a vertical section of the former, in Fig. 3 a vertical section of the latter, including the loggietta. Figs. 2 and 3 show that the principle of double wall construction embodied in the shaft of the old campanile has been followed by the designers of the new tower, but with certain modifications, the nature of which is illustrated by some of the horizontal sections in Figs. 4 and 5.

Each of the inner walls in the former structure were lightened by two lines of superposed arches (see Fig. 2 and section CD, Fig. 4). Inclined arches between the outer and inner walls (see Fig. 2) supported the slope which served the same purpose as a stairway, the thrust of these arches being exerted at one end against the exterior walls and at the other end against the arches in the interior walls.

In the new tower the inner walls are of uniform thickness, pierced by a single line of arches in every case (see Fig. 3), and connected at the corners by piers of the form shown in section CD, Fig. 5. The superiority of the later design is sufficiently evidenced by comparison of Figs. 2 and 3, and of the sections CD in Figs. 4 and 5.

Further, instead of the intermural arches tending to push asunder the walls and even to injure the weaker series, the exterior and interior walls of the new campanile are securely tied together by a reinforced concrete stairway, which is really a continuous spiral system of bracing. The walls are connected by steel tie-bars following the slope of the stairs and constituting reinforcement for the concrete, which, although finished on the soffit to give the appearance of arch construction, really acts in accordance with the principle of the beam. The stairway thus provides—between the two series of walls—a very strong and solid connexion equally capable of withstanding either tension or compression. This method of bracing the outer and inner walls is in every way worthy of commendation and will contribute materially to the strength of the new campanile. Comparison of sections AB, Figs. 4 and 5, will make clear the greater solidity of the new tower near the base,

a point further illustrated by the vertical sections, Figs. 2 and 3.

Up to the height of about 40 ft. the brickwork of the shaft was executed by the aid of scaffolding such as that customarily employed in building construction. Above that height a special form of movable scaffolding was employed, constructed from the designs of Signor Donghi, the city engineer, by the firm of Pasqualin & Vienna, of Venice. The scaffolding was designed to comply with the following conditions laid down by the Commission: (1) To insure the safety of workmen engaged in building the brick shaft to its full height of 55 metres above ground level; (2) to simplify the movement of the scaffolding from point to point so as to obviate delays; (3) to avoid any mode of support likely to cause blemishes on the face of the tower; (4) to carry a movable roof permitting operations to be conducted in all states of the weather; and (5) to expose the brickwork of successive stages as soon as completed in order that the atmosphere might have every opportunity of commencing to tone down the undesirably new appearance of the exterior.

The scaffolding, devised by Signor Donghi, and adopted by the Commission, is illustrated diagrammatically by Fig. 6, where A is the movable staging whose platform has an outer parapet composed of posts and horizontal rails finished by a lining of steel network to safeguard the workmen and to make it impossible for any materials or tools to be accidentally dropped into the square below, The upper rails of the parapet carry the roof of the staging, and the platform is supported by four braced girders joined at the corners to form a square frame. The opening between the four girders and the four sides of the working platform is such that no part of the staging comes in contact with the finished masonry, and consequently no injury to the face of the tower need be caused when the staging is being moved upwards from time to time after the courses of brickwork have been laid between platform level and the top of the parapet.

The clearance between the staging and the tower is not in itself a guarantee against accidental defacement of the outer surface, but it will be seen by the following particulars that satisfactory precautions have been taken to prevent any risk of contact and consequent injury. The staging is supported by four uprights as B in Fig. 6, each consisting of two channel bars riveted together so as to form a strut of I section. The positions of all four struts are shown in Fig. 7, but it should be noted that the height of the lateral supports varies on each side of the tower conformably with the progressive height of the windows wherein the supports are fixed. Each upright B is finished at the top by a bearer with diagonal struts forming a triangular capital, and at the bottom is suspended by two screwed bolts passing through nuts carried by the frame C, erected at the base of the tower. When the bolts have been screwed up to their full extent the upright B is held in position by bearers on the frame C and an additional length is riveted in place. The screwed bolts are then attached to the bottom of the lengthened upright so that the movable staging A can once more be screwed up for the required distance. By successive additions to the length of the supports the movable staging can be raised in this manner to provide for building the shaft of the campanile to its full height.

Having generally described the design of the scaffolding, we now give some further details of its construction. Fig. 8 is a section of the movable staging in position. The construction of the framework is sufficiently illustrated by the drawing, and therefore does not require detailed reference. We may say, however, that in addition to the steel network on the parapet of the working platform, a similar guard is fixed outside each of the braced girders, this protection being also formed of steel network, curved as represented in Fig. 8. The roof frame is covered by waterproof sheeting, which is sufficient to shield the workmen from rain or the direct rays of the sun. The sheeting is attached to rollers, by the aid of which it it can be quickly rolled up on the approach of stormy weather. As wind can then pass freely through the staging, that structure is more secure than it would be if finished by a fixed roof offering considerable resistance to air currents, and which might be blown off with serious consequences to life and property below.

Fig. 9 is a detail illustrating the screwed bolts by which the uprights B are suspended from the frame C at the base of the tower. The nuts through which the screws pass are rounded on the under surface so that they may readily assume an inclined position as the bolts are raised.

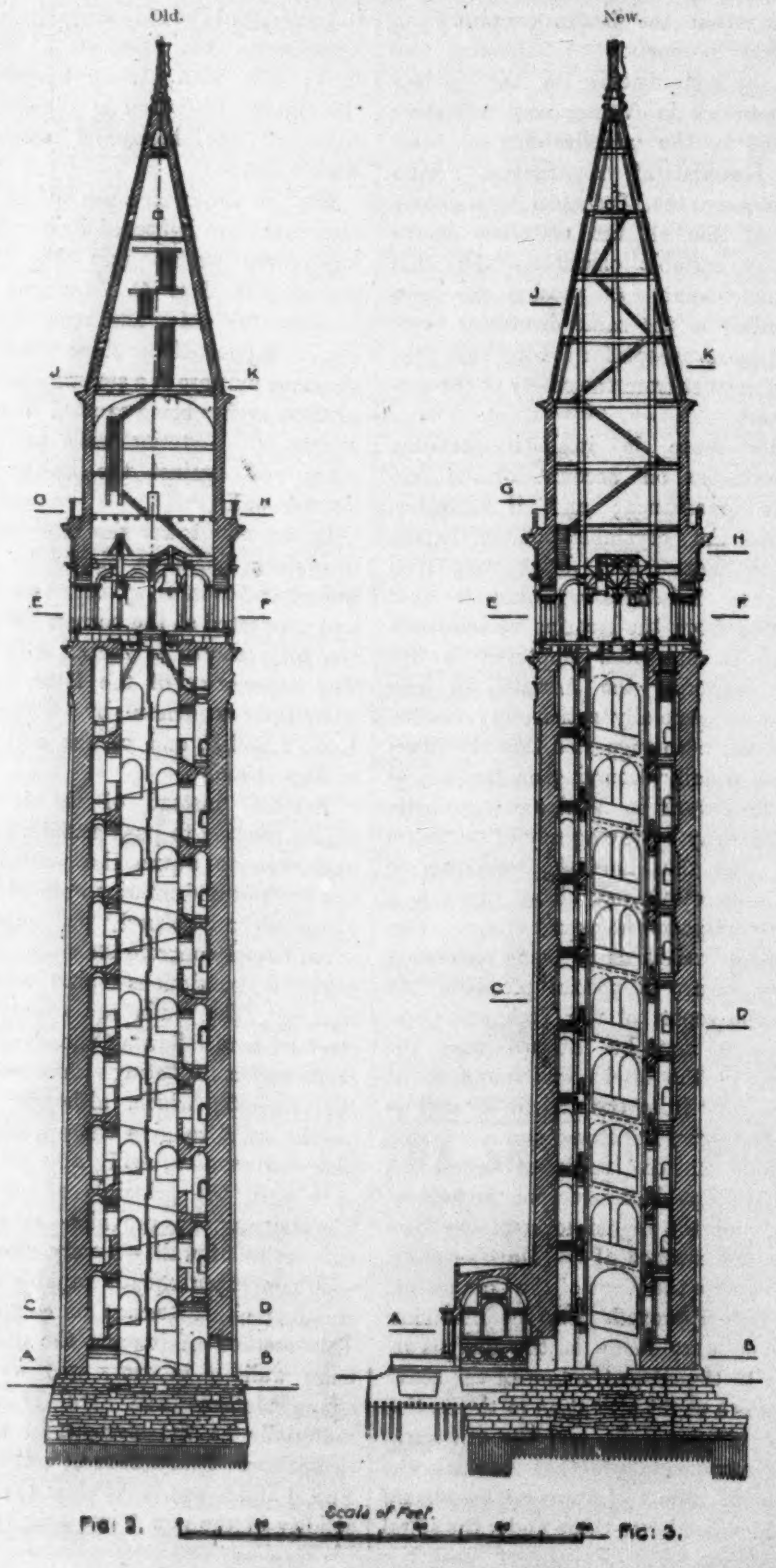



Fig: 2. Fig: 3.

When it is required to move the staging the four sets of nuts are simultaneously screwed round by eight men using spanners, a system of electrical signalling having been installed for the purpose of enabling the men to conduct the operation in a uniform manner. The addition of each new length to the channel bar uprights occupies about one hour. Figs. 10 and 11 are respectively a plan and section giving particulars of the guides for the uprights B. The guide rollers are fitted in angle bar frames carried by beams projecting from the staircase windows and securely held in position by timber struts and cross-pieces.

The cost of the movable staging and auxiliaries was about 1,400*l.*, probably little more than one-third the cost of ordinary scaffolding.

As previously stated, the walls of the new campanile from the base to the lower cornice of the belfry are being constructed of brick, laid in cement. To obviate as far as possible the compression of the mortar in the joints it was decided by the Commission to lay the brickwork in mortar mixed with quick-setting Portland cement. The bricks, made specially for the work by the municipality, measure 12 in. long by 6 in. wide by 3 in. thick, approximately, and weigh about 12½ lb. each. Special attention was devoted to their suitability in respect of colour and crushing strength, as well as to their capacity for withstanding the effects of heat, frost, rain, and spray. The cornices and all decorative work will be executed in the Istrian stone employed for the foundations.

It is anticipated that comparatively little difficulty will be presented by the task of rebuilding the loggietta in a satisfactory manner. The gates and various other parts have been recovered from the *débris*, and the work of reconstruction will be much facilitated by the complete details contained in ancient documents concerning the former structure.

In rebuilding the belfry and spire some important deviations will be made from the former method of construction. Comparison of Figs. 2 and 3 and of the sections GH and JK in Figs. 4 and 5 should enable the reader to judge the superiority of the new design in several respects. At the sections EF through the belfry there is not much difference save in respect of the more convenient position and arrangement of the stairways to be embodied in the new work, and in the details of the interior wall construction previously discussed.

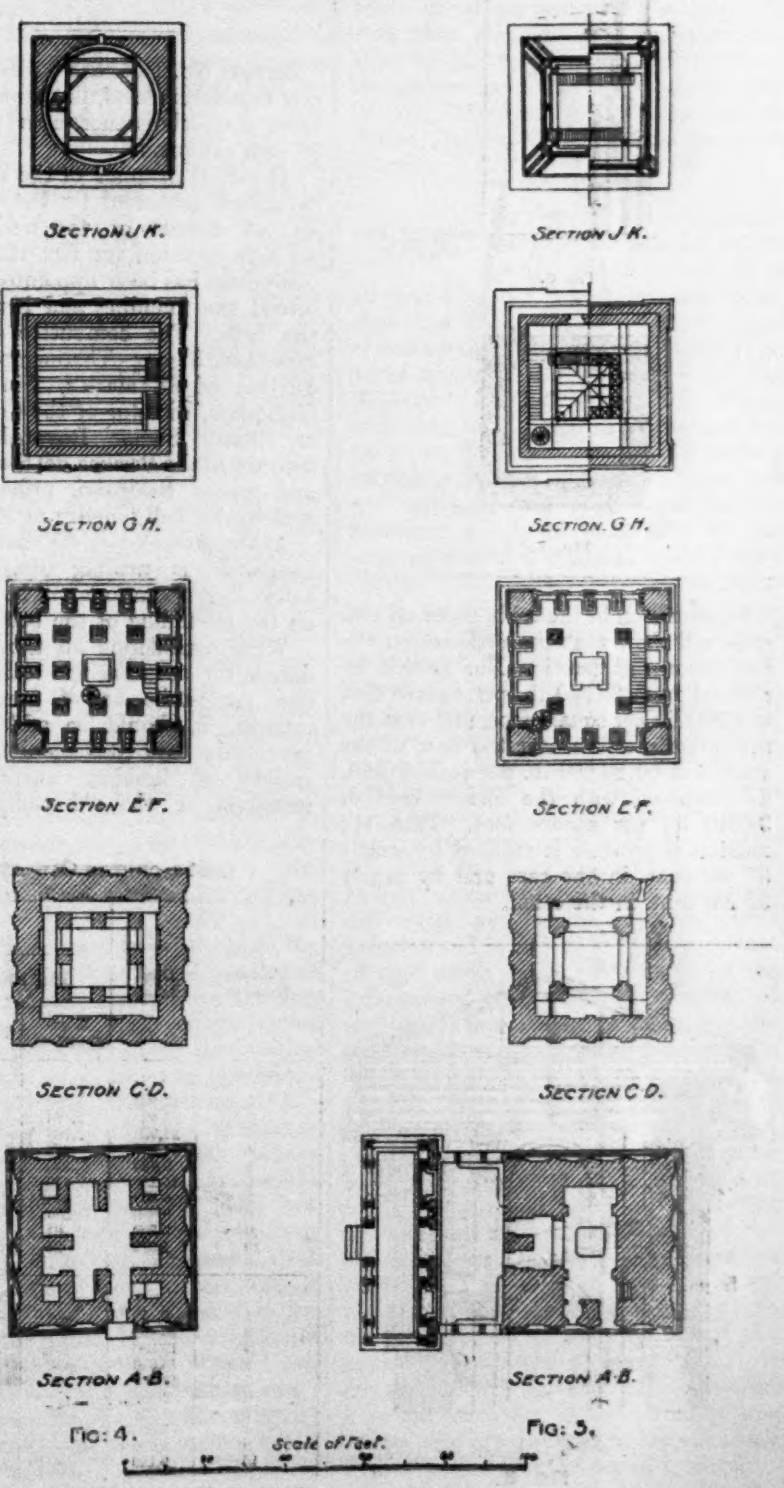
In the upper part of the belfry, where the bells were formerly suspended from timber framework, a braced steel structure will be adopted, as illustrated in Fig. 3 and in the right-hand part of section GH, Fig. 5. It will also be noted that the columns rising from the four corner piers of the interior walls are to be continued upwards through the box-like upper part of the belfry to points about half-way up the spire. This is very different from and far superior to the arrangement illustrated in Fig. 2, which shows that the corresponding columns extended no higher than the bell platform, and were not very adequately provided with lateral support at the top.

The interior columns, beams, and floors in the belfry and spire are to be of reinforced concrete, which will make a very strong and rigid framework (see Fig. 3 and sections GH, JK, Fig 5).

In the old campanile the floors above the belfry were of timber, and no serious effort had been made to brace or tie the walls, which, as shown in section JK, Fig. 4, formed a square spire of circular plan in the interior. This arrangement will be entirely altered, and the new spire will comprise steel rafters connected by horizontal tie beams of the same material and covered by planking. The general result will be to make the new spire considerably lighter and much stronger than the ancient structure. The spire will be sheathed in copper and the four angles faced in stone as before.

To provide for the safety of the statue surmounting the pinnacle and to obviate the strains that would be developed in the spire during stormy weather if the figure were rigidly fixed, the Commission have adopted a novel and ingenious arrangement. The base of the statue will rest on steel balls carried by a metal plate, presumably of cast steel. The surface of this support will be curved so as to permit the base of the statue to move freely in any direction except vertically, under the influence of the wind. A steel bar anchored in the middle of the statue will pass through an opening in the base of the ball bearing and extending downwards for several feet will be finished by a heavy counterweight. Thus the effect will be that the statue will be free to oscillate within reasonable limits and so will relieve the framework of the spire from undesirable strains.

In consequence of the various alterations embodied in the design of the new campanile the load upon the base is considerably less than that coming upon the base of the former structure, and the



load on the earth is further reduced by the increased area of the foundations. Moreover, the inclination of the old tower, to the extent of about 1 in 125, as the result of unequal settlement, had the effect of increasing the pressure on one side, an item which has not to be taken in account when dealing with the new tower. Another reason for the reduction of the forces acting upon the superstructure and the foundations is to be found in the improved method adopted for hanging the bells.

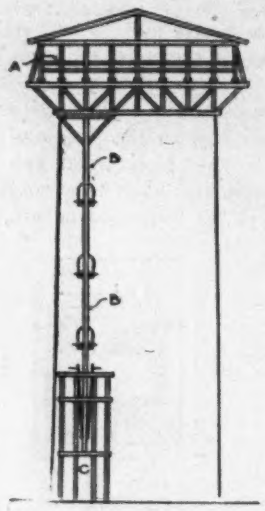



FIG: 6.

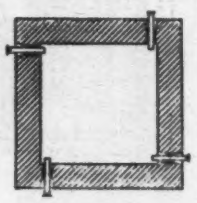


FIG: 7.

Examination of the table given on this page will show that the pressure on the foundation raft (section No. 1) will be reduced from 20,340 lb. per square foot to 8,800 lb. per square foot, and that the maximum pressure near the base of the shaft will be 26,500 lb. per square foot, as compared with the former load of 39,040 lb. per square foot. Thus the maximum pressure is reduced by nearly 57 per cent. in one case and by nearly 32 per cent. in the other.

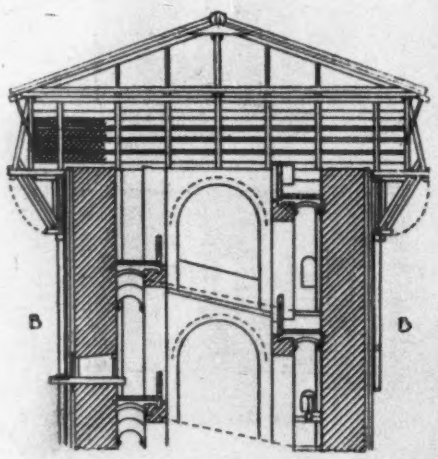



FIG: 8.

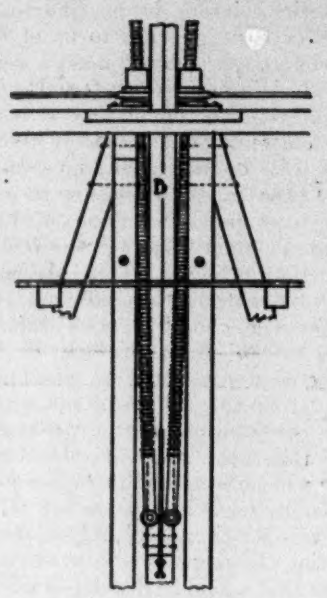



FIG: 9.

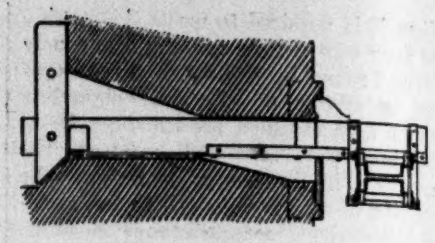


FIG: 10.

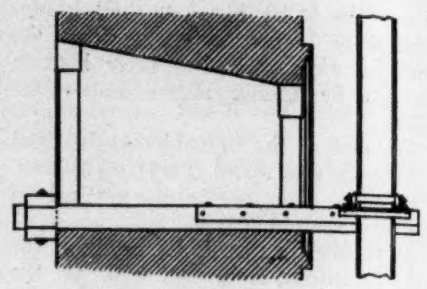


FIG: 11.

Section No. 1 in each part of the table is at foundation level, all the other sections being at equal distances apart in the shaft of each campanile.

As a final instance of the careful consideration bestowed by the Commission on all details of the reconstruction we may mention the fact that a special committee has been appointed to superintend the founding and installation of the bells. The committee includes as members Signor Thermignon, musical director of St. Mark's, Venice; Signor Gallignani, director of the Conservatoire of Milan; Signor Ravanello, musical director of the Basilica del Santo, Padua; and Signor Barigozzi, principal of the well-known bell foundry at Milan.

At the present date the shaft of the new campanile is nearing completion, and before long operations will be commenced on the rebuilding of the belfry.

While considering all these structural details for securing the stability of the new campanile as of great practical interest, it should be added that our previously expressed opinion as to the futility of building an architectural imitation of the old campanile is in no way modified, and that we would much rather have seen all this engineering talent bestowed on the erection of a campanile of better design, instead of on the reproduction of a clumsily-designed tower, which will not have even the historical interest that belonged to the original structure.*

## NOTES.

**The Arrangement of Museums.**

LT.-COL. G. T. PLUNKETT makes a very good suggestion in a letter in Tuesday's *Times* in regard to the arrangement of objects for study in the new galleries of the South Kensington Museum. He points out that the grouping of objects according to material and character—textiles in one group, wood-carvings in another, bronzes in another, etc.—has the disadvantage that the artistic products of a special age or country are broken up, and cannot conveniently be studied together as characteristic of the country

* The illustrations in this article have been adapted from some in the *Génie Civil*, and we have drawn from the same source for most of the facts concerning the reconstruction.

LOADS ON THE OLD AND NEW CAMPANILE IN POUNDS PER SQUARE FOOT.

| Section Number. | Dead Load. | Surcharge due to | | | | | | Total. | |
|---|---|---|---|---|---|---|---|---|---|
| | | Inclination. | | Wind. | | Bells. | | Maximum. | Minimum. |
| | | Compression. | Tension. | Compression. | Tension. | Compression. | Tension. | | |
| | | | | OLD CAMPANILE. | | | | | |
| 1 | 13,400 | 1,350 | 1,350 | 4,780 | 4,780 | 810 | 810 | 20,340 | 6,400 |
| 2 | 22,500 | 2,170 | 2,400 | 9,710 | 9,400 | 1,720 | 1,610 | 36,500 | 9,000 |
| 3 | 25,900 | 2,366 | 2,366 | 9,130 | 9,130 | 1,644 | 1,644 | 39,040 | 12,780 |
| 4 | 10,430 | 409 | 409 | 2,272 | 2,272 | 409 | 409 | 13,520 | 7,340 |
| 5 | 9,400 | 350 | 350 | 2,040 | 2,040 | 340 | 340 | 12,130 | 6,670 |
| 6 | 15,180 | 470 | 470 | 6,210 | 6,210 | 340 | 340 | 22,100 | 8,160 |
| 7 | 6,430 | 184 | 184 | 1,166 | 1,166 | — | — | 7,780 | 5,000 |
| 8 | 9,580 | 240 | 240 | 1,910 | 1,910 | — | — | 11,780 | 7,380 |
| 9 | 3,500 | 61 | 61 | 574 | 574 | — | — | 4,140 | 2,870 |
| 10 | 1,372 | 82 | — | — | — | — | — | — | — |
| | | | | NEW CAMPANILE. | | | | | |
| 1 | 6,810 | — | — | 2,000 | 2,000 | 290 | 290 | 8,800 | 4,220 |
| 2 | 16,460 | — | — | 8,870 | 9,450 | 1,170 | 1,250 | 26,500 | 5,710 |
| 3 | 17,500 | — | — | 7,900 | 7,930 | 1,100 | 1,180 | 26,500 | 6,440 |
| 4 | 14,940 | — | — | 6,110 | 6,170 | 950 | 920 | 22,000 | 7,820 |
| 5 | 12,400 | — | — | 4,630 | 4,670 | 750 | 770 | 17,870 | 7,060 |
| 6 | 8,280 | — | — | 2,630 | 2,660 | 330 | 340 | 11,240 | 5,280 |
| 7 | 9,730 | — | — | 2,990 | 2,920 | 180 | 180 | 12,420 | 6,580 |
| 8 | 3,850 | — | — | 1,040 | 1,040 | — | — | 4,890 | 2,810 |
| 9 | 5,630 | — | — | 2,180 | 2,280 | — | — | 7,810 | 3,950 |
| 10 | 9,160 | — | — | 4,780 | 4,780 | — | — | 13,940 | 4,380 |

and period. He suggests a cross system of arrangement; the same class of materials (say bronzes) being arranged successively in a longitudinal direction; then a parallel line, say, of wood-carving, in the same direction; and so on for all the different classes of work. In the contrary direction, cross-wise, all the different objects would be those belonging to one country or period; so that by following the cross-line the student would find the different classes of work of one period or country grouped in one line. It is a counsel of perfection, no doubt, and would need a great deal of trouble and care in the carrying out; but the suggestion is well worth bearing in mind and working up to if possible.

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**École des Beaux-Arts, Paris.**

LAST month the work by the students of the Villa Medicis, Rome, was exhibited at the Beaux-Arts. The painting, sculpture, and engraving as usual received the most varying criticisms, but a remarkable phenomenon in this exhibition was the amiable leniency with which the architectural exhibits were unanimously judged. They formed, indeed, a fine collection. M. Jaussely's plans of the Capitol and M. Lefebvre's ceilings of the Ducal Palace at Mantua are really distinguished works. M. Hebrard's Palace of Diocletian, Spalato, deserves close examination, while the scrupulously complete drawings and remarkable draughtsmanship of M. Prost's Santa Sofia, Constantinople, are beyond praise. These studies are as valuable as those of M. Chedanne's of the Pantheon; they should receive the same reward. They are accompanied by a collection of exquisite water-colour drawings which show the atchæologist to be an artist of subtle feeling and refined taste for colour. The future alone will show whether, besides being able to execute remarkable retrospective works, these gentlemen, whose erudition deserves the greatest praise, will be capable of constructing theatres where one can breathe and museums where one can see.

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**The Enclosing of "Ancient Rome."**

THE authorities in Rome are earnestly striving to carry out before 1911, *i.e.*, the Jubilee of the Unification of Italy, the project of forming a "monumental zone." This was agreed to a year ago by the Chamber. According to this project a large pleasure ground, reaching from the Forum and the Palatine to the Porta S. Sebastiano on the one side and to the Porta San Paolo and Circus Maximus on the other, would enclose all the ancient buildings on the site, while all modern buildings, factories, etc., in the district would be expropriated and pulled down. The committee which has been appointed to carry out this magnificent idea has decided to start by laying out an avenue, 100 metres wide, which will lead from the Church of S. Nereo and Achille to the Palatine, and thence past the Colosseum to the Strada in Miranda. Three smaller avenues, 50 metres wide each, will lead from the main avenue to the three gates, Porta Latina, Porta Metronia, and Porta San Sebastiano. Apart from the improvement which these pleasure grounds will effect in this important part of old Rome, it is hoped that interesting discoveries will be made.

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**The Limit for Tall Buildings.**

SINCE the publication of our recent "Note" on the latest American skyscraper with the maximum height of rather more than 900 ft., we learn that preliminary drawings have been prepared for a building in New York with a central tower to reach the level of 1,000 ft. above the pavement. The craze for high buildings is so strong just now that people in America are beginning to ask whether any limiting conditions exist that are likely to bring the skyward competition to an end. As a matter of fact the absolute limit of height is indirectly furnished by the clause in the New York building code, which states that the maximum pressure on rock, if caisson foundations are employed, shall not exceed 15 tons per square foot. The clause is supplemented by others which provide that the walls of a skeleton building must be 12 in. thick for 75 ft. downward from the top, and increased in thickness by 4 in. for each lower section of 60 ft.; that the building shall be able to withstand the wind pressure of 30 lb. per square foot, and that the overturning moment of that wind pressure shall be not more than 75 per cent. of the moment of stability of the building. Taking these restrictions into account it would not be possible to erect a tower upon a site measuring 200 ft. square to the height of more than 2,000 ft. without contravening the regulations of the Building Department. It is something to know that there really is a practical limit of height for buildings even in New York.

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**The Bending of Columns.**

IN a paper read at the summer meeting of the Institution of Mechanical Engineers, Mr. C. A. M. Smith described an instrument devised by him for the purpose of investigations into the properties of materials now being conducted at the East London College. This appliance was constructed particularly for measurements connected with the bending of columns, but can be quite easily used for the purposes to which an ordinary extensometer is applied. It represents a decided advance on previous instruments, and is particularly convenient for determining values for E (the co-efficient of elasticity), the exact load at which the bending of a strut commences, a value of E and the exact load at which bending commences for struts of varying ratios of length to diameter, and it also enables measurements to be taken on specimens of minimum length. The instrument has been tested satisfactorily with specimens in tension as well as with others in compression. In order to secure axial loading caps of hard steel are screwed on the ends of the specimen and on each of the caps is placed a steel ball. This device may answer well if the caps are very truly fitted, but we agree with the author in preferring some method in which screwed threads are absent. It may be hoped that on some future occasion Mr. Smith will communicate the results of the experiments at present in progress.

**The Quebec Bridge.**

WE learn that the Canadian Government have decided that the Quebec Bridge shall be completed by the Transcontinental Railway Commission under the supervision of three eminent bridge engineers. The structure constitutes an important link in the great railway undertakings in which the Government are interested, and it is evidently most desirable that the work should be completed at the earliest possible date. The board of experts have full authority to prepare new plans, but in view of the fact that the masonry piers, abutments, and approaches represent a considerable asset, it is not improbable that the design ultimately adopted will very much resemble that originally prepared. So far as its main features are concerned the design approved by Mr. Cooper was of suitable character, although we now know that the proportions of the compression members were far from satisfactory, and that some other details were susceptible of improvement. We may be sure that no risks will be taken this time by the responsible advisers to the Government and that in respect of factors of safety there will be a leaning towards British rather than towards American practice.

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**The Question of Roads.**

WE may draw attention to the fact, of interest to the general public as well as to all road engineers and county surveyors, that the International Road Congress is to be held at Paris from October 11 to 18, on which occasion it is to be hoped that England will be well represented. Whatever may be said about the state of her by-roads, France has been for a century emphatically the country of good and carefully-kept high roads, and there is therefore a special suitability in the meeting of such a Congress in the French capital. The recent great development of the use of the motor renders the question of road construction of special importance at present; and it is to be hoped that some new light may be thrown on the possibility of the construction of dustless roads within practical limits of economy. In the meantime a very practical letter appeared, in the same issue of the *Times* which contained the announcement of the Paris conference, by a correspondent who signs himself "H. S. L.," calling attention to the unnecessary difficulties put in the way of motor vehicles and cycles (and to some extent of road-using vehicles generally) by the exaggerated and inconvenient extent of camber in the section of the roads in some counties of England. He mentions the experience of his own chauffeur as to the superior ease and safety in driving on the comparatively flat sections of roads in certain counties named, as compared with the driving on highly cambered roads, the result of which camber is that all vehicles, until obliged to go to the side for passing, keep on the crown of the road and thus develop two deep ruts there, which certainly do not add to the convenience or the long life of the road. The protest of "H. S. L." is certainly called for, and we recommend it to the attention of those county surveyors who are disposed to lay out roads with a section like the top of a barrel.

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**Motor-Cars and the Roads.** THE reports of the County Surveyors for Kent and Cheshire, recently published, both draw attention to the heavily increased expenditure on the roads rendered necessary by motor-car traffic. In Cheshire the estimates for the expenditure on the roads controlled by the County Council show an increase of about 10,130*l.*, or 22 per cent. In Kent 3,500*l.* has been expended on tarring the roads alone, but the report states that this is the smallest part of the cost, as the armoured tyres have a destructive influence on the roads peculiarly their own. The County Surveyor for Kent raises the question whether the use of such tyres is not an infringement of the Motor Cars (Use and Construction) Order, 1904. Article 2 subsect. 3 of this Order provides that "the tyre of each wheel of the motor-car shall be smooth and shall, where the same touches the ground, be flat"; but there is a proviso which seems to render these regulations of little effect—"Provided that when a pneumatic tyre or other tyre of a soft or elastic material is used the conditions hereinbefore set forth with respect to tyres shall not apply." As far as the roads are concerned the rules seem to require amendment, but if non-slipping tyres were prohibited the danger to the public would be increased, as a collision may occur at any moment from side-slip. The public are between Scylla and Charybdis. The Cheshire County Surveyor emphasises the fact that it is the fast through traffic which causes this damage, and at the same time depreciates the rateable value of property on the main trunk roads. Motorists are fond of comparing the present opposition to motor-cars to that experienced in the early days of railways, but if any comparison can at all justifiably be made between motor-cars and railways it lies in the fact that whilst railways constructed on property purchased especially for the undertaking contribute heavily to the rates of the districts through which they pass and upon which they confer many benefits, motor-cars, whilst depreciating property, contribute nothing to the districts through which they travel. It is obvious that some more universal system of rating for the upkeep of the roads should be adopted, as at present the ratepayers in counties near crowded centres are rated for through motor traffic which but causes inconvenience and injury.

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**St. Michael's, Coventry, and a Diocese for Warwickshire.** ON September 29, the Feast of St. Michael and All Angels, the Church of St. Michael, Coventry, will become a collegiate foundation by the promulgation of the new statutes. The college is to consist of twenty-five members, with the Bishop of Worcester as Dean, and the vicar, Canon Masterman, as Sub-Dean. The establishment of a capitular body is a preliminary measure to the reconstitution of Coventry as the cathedral city of a Warwickshire diocese. The bishopric of Mercia, founded in 656 by Oswy, had at first the name of Coventry and Lichfield, and in Offa's day was archiepiscopal. The seat of the see, comprehending the counties of Derby and Stafford, and nearly all of Warwickshire and Salop, was removed to Chester in 1075; in 1102 it was removed by Bishop Robert de Limesey, custodian of Leofric's monastery, to Coventry, and thence in 1188 to Lichfield, for the diocese of Lichfield and Coventry. Under 6 and 7 William IV., c. 77, the city of Coventry was separated from Lichfield, and together with the county was attached to the diocese of Worcester. Of St. Michael's the reputedly oldest portion is the beautiful tower and octagonal spire, rising to some 300 ft., which were built of red sandstone in 1373-95 by Aldermen William and Adam Botoner, and were with the body of the fabric restored twenty years ago by Mr. J. Oldrid Scott at a total expenditure of about 40,000*l.* The large extent of the church is due to the fact that almost every guild of the city had a chapel within its walls, the church being built to contain all of them. On April 22, 1893, we published a four-page drawing, with plans at successive levels, of the tower and spire; in our issue of June 20, 1891, we illustrated Messrs. Paley & Austin's plans and designs, with a section, for the tower to receive the famous peal of ten bells, to be 50 ft. square at base and 137 ft. high, with an assembly-hall and a chapter-room in the first and second stages, and connected by a groined corridor and archway to the Lawrence and Girdlers' chapels. The bases of two or three massive columns of the west front, and some foundations, to the north of St. Michael and Holy Trinity Churches have remained to our time of the first cathedral, formerly the wealthy Benedictine Abbey of SS. Peter and Osburg, which Leofric, Lord of Mercia and husband of Godiva, founded *temp.* Edward the Confessor to replace the convent of St. Osburg, which Edric and Canute destroyed in 1016, and wherein Leofric was buried in 1057.

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**The Ordnance Survey.** ACCORDING to the annual report of Colonel Hellard, the Director-General of the Ordnance Survey, the field work of the first general revision of the original plans of the $\frac{1}{2500}$ scale cadastral survey has been completed, and the revised plans are now available to the public with the exception of some areas in Cornwall and Pembroke. The field work of the second general revision appears to be making good progress, the chief centres of activity being the counties of Cheshire, Hampshire, Lancashire, Sussex, and Yorkshire. Some very useful extensions and revisions have been made with the co-operation of municipal corporations in various parts of the country, these being certain to prove very helpful to architects and estate agents in the districts affected. In Ireland the re-survey on the $\frac{1}{2500}$ scale has proceeded apace, the area covered during the year 1907–8 having been more than a million acres. The list of new maps prepared and published within the same period is a creditable record. Thus, the 6-in. scale maps of the first general revision were completed, and more than a thousand square miles of the second general revision were published; maps on the 1-in. scale covering nearly 8,000 square miles have been engraved; several sheets on the $\frac{1}{2}$-in. scale have been issued; and the coloured 1-in. scale map is complete for the whole of Ireland. It is satisfactory to note that the sale of small-scale maps has considerably increased in consequence of the new arrangements made. The Treasury have made less profit, but that is quite a secondary matter.

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**Art and Commercialism.** "THERE is no other country in Europe where so little money is expended in the cause of art generally as in England. The attitude of the Universities of Oxford and Cambridge has been so full of prejudice that they have been slow to answer the demands which relate to the progress of music, the drama, and the graphic arts." We make this extract from a paper read by Sir W. B. Richmond before the International Art Congress. In a country so apathetic can much progress in the arts be reasonably looked for? The fact is that it is the buyers quite as much as the producers of works of art who must be educated to appreciate what is best. To the art-worker the prime necessity is to live; it is absolutely vital to him that he should find a market for his wares. So long as the bulk of the middle classes are, as at present, totally ignorant of what constitutes good work, the arts of design cannot be expected to flourish. As long as "the greater number of undergraduates leave the Universities as ignorant of the place the arts have occupied in ancient and modern history as they were when they left school," so long shall we be an inartistic nation. We have heard much of art (with a capital A) and commercialism; an enlightened and educated commercialism is its only salvation.

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## COMPETITION FOR THE REBUILDING OF MARKET GATE, WARRINGTON.

THE town of Warrington has made a laudable attempt to deal with the old Market Gate, an irregular confluence of five streets. By cutting back the more projecting angular buildings, they propose to form a circus with a radius of 160 ft. This is a most hopeful sign, and is, we suppose, one of the first circuses laid out in a provincial town since the middle of the last century. We can think of numerous cross roads in towns where this treatment would be advantageous practically, and if rebuilt in one continuous design as is intended at Warrington, of the greatest possible effect as civic architecture.

Unfortunately, in this instance, the streets meet in such an irregular way that the frontages are of different lengths, being about 48 ft., 42 ft., 66 ft., and 46 ft. respectively, while an old building thrusts one corner into the circle which ought to be brought into the scheme. The problem being somewhat complicated, a competition was instituted, for which six local architects entered. The following is a list:—Messrs. Wright, Garnett & Wright (2 sets), Messrs. W. and S. Owen, FF.R.I.B.A. (2 sets), Mr. S. A. Machey, Mr. T. Beesley (5 alternatives), Mr. A. Warburton, A.R.I.B.A., Mr. P. Silcock, F.R.I.B.A.

One of the sets submitted by Messrs. Wright, Garnett & Wright has been placed first, one of Messrs. Owen's second, and the other set of Messrs. Wright, Garnett & Wright, third. The problem was of course largely one of elevational treatment; after the circle has been struck, the planning is merely the fitting in of the shops which are to occupy the ground floor all round the circus, into the various blocks which are left. One competitor, Mr. Beesley, however, does suggest a difference on plan, by omitting one quadrant of the circus, and putting an

apse into a Georgian church, which is the next building along the street. This certainly gets rid of a rather narrow block of shops, but would have the effect of spoiling the complete circus, and would leave the blank wall in common brick of the building in the street at right angles to the church, exposed in an unsightly manner.

On looking at the various designs here exhibited, we were led insensibly to compare them in the mind's eye with Mansard's Place des Victoires in Paris, and we wish that the competitors had thought of it before making their designs. Not that we wish to see French Renaissance imported into Warrington; this would be as out of place as Mr. Warburton's design in half-timber work, importing the very different atmosphere of Chester into this manufacturing town. But we allude to the principles which underlie Mansard's treatment of a circus—the delightfully simple and restful effect which he has obtained, where it had not been spoiled by the addition of a story—by a flat style of detailing and absence of heavy projections, and the continuity of design unbroken by any grouped features which allows the simple line of the circle to speak for itself. A design which would be uninteresting and jejune on the straight becomes dignified and restful when it has a special interest on plan such as circular or crescent-shaped, or even when forming the sides of a square. A striking instance of this may be seen in the Rue de Rivoli, in Paris, which, as a street front is exceedingly dull and monotonous; but the very same design carried round to form two sides of the square before the Palais Royale, becomes entirely effective.

These remarks apply to all the designs sent in, which have the usual English fault of piling on of features too thickly. In both the first and second placed designs there are features with circular pediments, in the second awkwardly broken into by windows, which we should have thought would have suggested to the author the desirability of leaving out pediments altogether. Messrs. Wright, Garnett & Wright's first placed scheme is, on the whole, the best. They have obtained a good effect of continuity by carrying round a broad band of brick for the first floor, with a stone band over. The windows, however, in the brick part, are rather weak, being a sort of high narrowish Flemish type of window, with brick aprons and little pediments over, and out of keeping with the too heavy crowning cornice, which is carried round the end features. The shop fronts are divided by pilasters.

The assessor, Professor Reilly, in his report lays great stress upon the material in which the design he places first should be executed, and he suggests sand-faced bricks and Portland stone—a combination with which we heartily agree. He also suggests the omission of the small pediments over the first-floor windows and the substitution of a Mansard roof for one of 45 deg.

His general criticism of the scheme is that the radius of the circus as planned is too small in relation to the width of the widened streets running into it. He suggests a strong horizontal treatment to counteract this defect, and the winning design is considerably the best in this respect.

Messrs. W. & S. Owen's design (placed second) is too heavy throughout, though it is a more homogeneous design than the winner. It is entirely in stone, with the shops divided by rusticated piers and heavy stone domes on the main cornice. There are also the objectionable broken pediments already alluded to.

Messrs. Wright, Garnett & Wright's other scheme, placed third, is very similar to the second premiated, with the exception of a story under the cornice with an order of small columns. It has circular pediments, which seem singularly redundant in this design.

Messrs. W. & S. Owen's other design is a Dutch Gothic picturesque treatment with gables—well carried out, but most unsuited to the town, and also to a formal and regular lay out on plan, which naturally suggests a renaissance rather than mediæval treatment on elevation. There is also the church which we have already mentioned, to give a hint as to the style to be adopted.

Mr. Warburton's half-timber design, as we have already said, is equally unsuitable, though it is a good design of its kind, and it has wood posts carried down on to the edge of the pavements.

The other designs do not call for much comment. On the whole, we must congratulate Warrington for having initiated this excellent departure in town planning, and also on having obtained a good design which, with the help of a little careful remodelling, might be made into an excellent one.

## REBUILDING IN SAN FRANCISCO.

(FROM A CORRESPONDENT.)

SAN FRANCISCO at the present time affords a unique sight, for though the earthquake and fire laid the lower portion of the town in ruins, it left the upper portion unscathed.

Arising from the ashes of the business section are many immense structures. These in excellence of workmanship, variety and quality of material, science of planning and beauty of design, vie with the business palaces of Chicago and of New York. The ground upon which the city stands varies from rock to stiff clay, from what were formerly shifting sand-dunes and reclaimed swamp lands to made-up ground. The clay when kept free from moisture is hard, compact, tenacious, and difficult to excavate. The sandy soils vary from a clean sharp sand, admirably adapted for mixing with lime or cement, to a fat loam which is useless for building purposes. As the rubbish carts were not subjected to a very searching scrutiny when they hauled on the *débris* to extend the water front and to fill in the creeks, the made-up ground is found to be very varied in its composition.

The buildings of the warehouse type are usually from three to four stories high, and where they are built over swampy land they invariably rest upon pile foundations. The tops of the piles are cut off 6 in. below the lowest water-line, and on their heads is placed a reinforced concrete platform. The concrete extends 6 in. beyond the outside of the piles, and is rammed down to a depth of 6 in. between the piles. Crushed rock to form the matrix for concrete is obtained from local quarries, but the cement is imported chiefly from Europe and Japan. There are several local brands of cement, but they are not eagerly sought after.

Many buildings which were formerly brick are now constructed with reinforced concrete. High office buildings are steel-framed and cased with a veneer of brickwork or concrete. These two classes of buildings are found to successfully resist the earthquake tremors, which even now occasionally occur. The façades of concrete buildings are decorated with terra-cotta, or faïence, or else plastered. External cornices are usually very bold and are invariably made out of sheet metal, not of stone. Frequently they are painted the same colour as Portland cement and then sanded.

Brickwork in America is not so well bonded as in Europe. The American brick contractor mixes his mortar stronger than we do, but pays less attention to breaking bond. He considers that the extra cost of the cement is more than compensated for by the saving in labour. A bricklayer's scaffold constructed on the English system of tieing with cords is unknown. It is considered too cumbersome and also too costly. Occasionally cantilevering out is resorted to, but usually bricks are laid from the inside of the building and the scaffold rests upon the floor joists or else it is supported upon masons' trestles. Building materials are hoisted in wheelbarrows, either by electric or steam lifts; it is only in exceptional cases that a hod is used on a building.

In framing an ordinary partition the American carpenter substitutes wire nails for mortises and tenons. Stairs are more frequently "built up" on the building than they are framed together in the shop. A favourite method of finishing the interior of houses is to panel the walls with a wooden dado. These dadoes are invariably "built up." Iron joist hangers are substituted for the old-fashioned mortises and tenons, and whenever two thicknesses of timber can be nailed together and substituted for one thickness it is invariably done.

Some trade terms at first sound very strange; not least is the classification of nails: 2½-in. nails are called "eightpenny nails," and 4-in. are called "twentypenny nails."

Suburban houses are mostly built of wood; very rarely are they built of brick or stone. The favourite scantling is 4 in. by 1½ in. The roofs are usually pitched and covered with shingles. The walls are covered externally with shingle or clamp boarding, and internally the walls are plastered. Within the city fire limits the roofs are flat. The usual method of covering flat roofs is to lay on the top of the roof-boarding five layers of tarred felt; each layer is given a lap of two-thirds. The first layer is tarred to the roof-boarding, and each successive layer is cemented with tar to the layer underneath. The whole surface is then covered with a thick coating of tar, and on top of this is spread gravel. Where we in England use lead the San Francisco builder usually substitutes tin.

In America labour is more highly organised than it is in England. In San Francisco it is impossible for a man to obtain employment unless he belongs to a trade union. The attitude of the average American workman towards his employer is different from the attitude of the average British workman towards his. The former practically says to his employer: "We have got all we can out of you and now you are welcome to get all you can out of us; and we will help you to do it." The American mechanic has a far larger show for his day's work than has his compeer in Europe. This increased daily output is partly the result of using more up-to-date machinery and labour-saving appliances, partly by more expeditious though not necessarily better methods of construction, but chiefly by more strenuous effort on the part of the men, resulting in greater speed and avoiding all unnecessary waste of time. The men start work at eight o'clock, they have one hour at noon for lunch, and they quit work at five o'clock.

For several minutes before the whistle blows to commence work the men have donned their overalls, have ascended the ladders, and are standing beside their work. Directly the whistle has finished blowing one immediately hears the ring of the trowel, the bang of the hammer, the siss of the saw, and the clatter of the hoist. Everyone is working at his fullest speed.

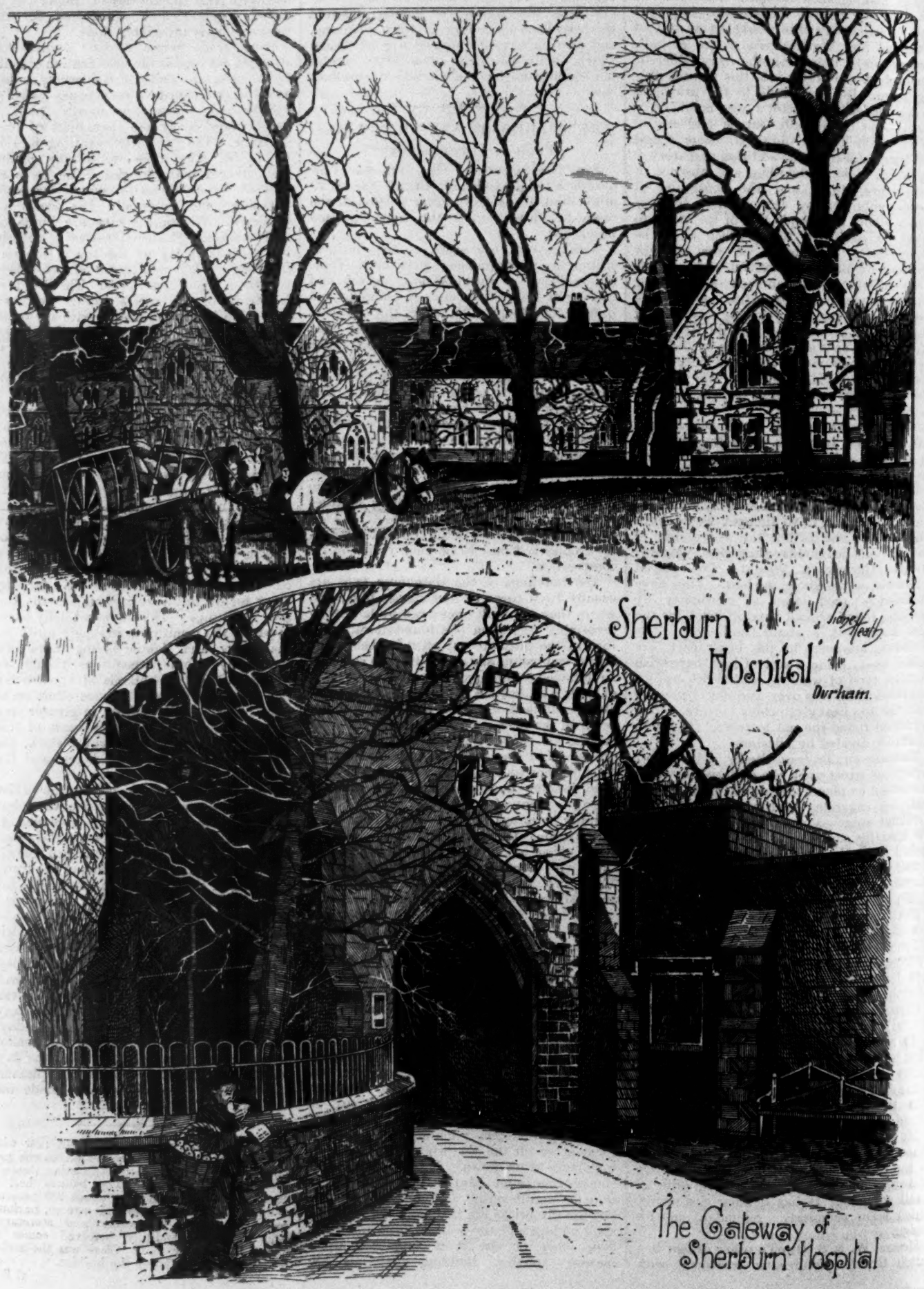
The American mechanic starts work with a lofty spirit of hilarity and independence. He is light-hearted, and goes to his day's work in somewhat the same spirit as a prosperous merchant to his office. A group of bricklayers before they start work will say: "We'll make that wall set up to-day." When they come down from off the scaffold in the evening they will look up at the day's work with a feeling of pride and pleasure, and then say: "Well, we have made that wall set up!"

LECTURE HALL, CARRICKFERGUS.—A new wing and lecture hall have been added to the premises of the Young Men's Christian Association in Carrickfergus. The lecture hall is capable of accommodating about 250 persons, and the additions include dining-room, parlour, recreation-rooms, bedrooms, and secretary's offices. The expenditure involved comes to about 1,000*l*. Mr. S. P. Close was the architect, and Mr. E. Caters the builder.

## SHERBURN HOSPITAL, DURHAM.

SHERBURN HOSPITAL, situated two and a half miles from Durham, was founded A.D. 1181, by Hugh Pudsey, "the jolly Bishop of Durham" (A.D. 1154-1194). The original institution provided for the reception of lepers of both sexes, and was dedicated in honour of "Christ, the Blessed Virgin, Lazarus, Martha, and Mary." The old hospital seal depicts Christ standing with a glory around His head; in one hand He holds a scroll, with the words "*DATO ET RETRIBUAM*," with the other He raises aloft a crown. Behind is seen the gateway, which a bent and diminutive creature is entering.

The original buildings suffered much during the middle of the XIVth century from the ravages of the Scots. The present house follows the general form of the original foundation, being quadrangular, with a low range of buildings on three sides. The master's lodge was pulled down in 1833 and rebuilt with no pretensions to that architectural style which had formerly distinguished it. The old buttressed wall at the entrance is in great part original, as also are the main arch of the gateway and the vaulting within it. Over the gateway there is a muniment room wherein are kept the



ancient documents relating to the foundation. The adjoining church has retained but little of the original structure, having been twice destroyed by fire, the last time in 1864, when fortunately the XIIIth century tower was so slightly damaged as to need nothing but refacing and the insertion of a

few mouldings. The foundation is now a large, wealthy, and important charity, which, owing to the establishment of an outside dispensary, is able to relieve the poor who are physically distressed in a manner somewhat akin to the intentions of the pious founder.

SIDNEY HEATH.

## THE ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

THAT the thirty-ninth annual excursion of the Architectural Association took place this year at Bruges, and that the official visits of the first day were three in number, namely, at 8 a.m., 12.30 p.m., and 7 p.m. all in the pleasant dining-room of the Hôtel de Flandre, is a somewhat bald statement devoid of general interest. It is, nevertheless, a true and faithful record of fact, and fully states the programme of the Association for that day. Conscious of the obvious shortcomings of such a narrative, we venture to supplement it with some account of the impressions which a twenty-four hours' stay in Bruges has made upon us.

What one feels most, after wandering beside the canals and along the narrow and winding streets of the city, is the general picturesqueness of the place, and the homogeneity of the buildings. They are almost all of brick, and all exhibit the same characteristics, whether the work of the early XVIth century or late XIXth. Stepped gables and steep-pitched tile roofs are universal, fenestration is generally symmetrical and good, walls are frequently decorated with traceried panels in brickwork and stone is sparingly used. Large blocks of stone were apparently not to be obtained at Bruges, and stone lintels over windows are generally so thin that relieving arches are necessary above them. A characteristic feature of the latter is worth mentioning. The filling between the lintel and the arch is never brought quite up to the latter, but a space, about three-quarters of an inch wide, is left under it, which gives a very pleasant line, and prevents pressure from being transmitted through the crown of the arch on to the lintel below.

Bruges is not remarkable for architecture in the—or, in short, in any, "grand manner." The dignity of mass and proportion does not seem to have been the ideal of the old architects, and they were more interested in brickwork for its own sake. This they fully understood, using it always cleverly, often playfully, and nearly always wisely.

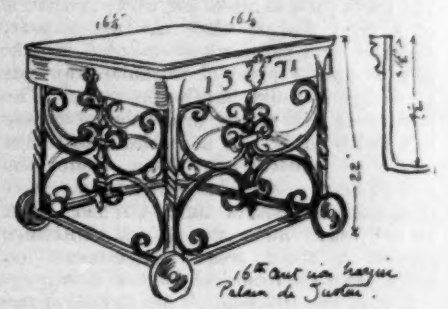
The churches seem to be the most architectural buildings in the city, and, although they have been much pulled about and restored, are nearly all big in scale and broadly treated. Owing to having been built of brick there is very little ornament outside, but relief is obtained by deeply-recessed windows, whose thin tracery seems to accord well with the general treatment.

These remarks apply especially to the Cathedral, a XIVth century structure, which Baedeker describes as externally "a cumbrous building, disfigured by later additions, and surmounted by a tower resembling a castle." We are not able to agree with Baedeker here, for it is an impressive exterior, well massed, and with a fine tower of considerable height. Inside the church is also fine in conception, and spacious. It has been covered with painted decoration, the general effect of which is rather pleasing, but a very vulgar and cumbersome rood screen, which is a travesty on classic architecture, is a sad disfigurement to the building. Another important church is that of Notre Dame, which has an exceedingly fine transeptral tower on the north side, crowned by a modern spire and pinnacles of bright-red brick; and, although the latter do not rest very happily at the four corners, this is the finest tower in Bruges; for the more famous belfry of the Halles, with its charming peal of bells, is unfortunate in the design of its upper portion, and the Cathedral tower, too, whose upper part is a modern rebuilding, is a little lumpy. The interior of Notre Dame is not so fine as the Cathedral; it is very broad, for there are large chapels built on, outside the north and south aisles; but it is wanting in height and dignity, and has been rather badly treated in restorations. This church is further disfigured by the presence of a large number of tawdry, gimcrack figures which are a disgrace to art, let alone religion, and are here so much the worse by contrast with a beautiful marble Virgin and Child attributed to Michelangelo in the altar-piece in the South Chapel.

There are several picturesque old gateways to the city, but of little architectural value, except the Porte d'Ostende, which is a very happy piece of grouping. These all gain very much by their situation on the canals; indeed, the canals are all important factors in picturesqueness of the town, and without them Bruges, the City of Bridges, as the name means, would lose its most charming and peculiar characteristic.

### MONDAY, AUGUST 10.

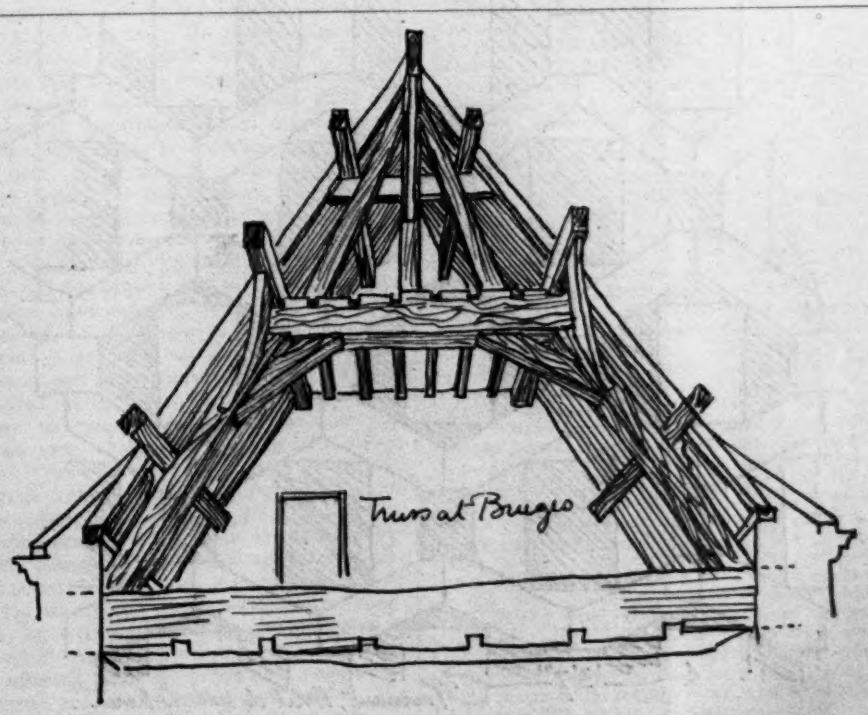
Monday's programme was not a long one, and consisted of visits to the Gruuthuuse Museum, the Hôtel de Ville, and the Palais de Justice. The first-named is a late XVth century mansion, which has been practically rebuilt of late years to house a wonderful collection of old furniture, pictures, lace,




and domestic utensils of all kinds. The Flemings were never great architects, but they certainly excelled in the crafts, and the Gruuthuuse is a veritable treasure house of beautiful things. The kitchen is perhaps the most interesting room in the house, with its enormous open fireplace nearly 17 ft. across, spanned by a flat arch, whose crown comes about 7 ft. 6 in. above the floor; and its contents, though consisting largely of such prosaic objects as gridirons, candlesticks, and cupboards, are all delightful little works of art, and by no means unworthy of a place in an architect's sketch-book.

The afternoon visits to the Hôtel de Ville and Palais de Justice, adjacent buildings, were not quite so inspiriting. The former is a XIVth century structure, which seems to have its admirers, and is described as "elegant" by Baedeker, but is really a good example of how not to use sculpture, for the walls are peppered all over with canopies and niches holding statues, which serve no architectural purpose, and completely confuse the lines of the building. Inside, the Great Hall on the first floor is a fine room, decorated in colour, and with excellently composed modern frescoes, by Albrecht Devriendt, representing scenes from the history of Bruges. It is vaulted in timber with much pendant work, but the latter comes right over the centre of the room, and is not satisfactory.

The old municipal record office, which was built by J. Wallot in 1535, and now a part of the Palais de Justice, is a quaint Renaissance building, very much decorated with gilding, and, though by no means a masterpiece, is designed with a good sense of architectural proportion. The Palais



de Justice proper is a poor XVIIIth century building, but one room of an older part survives, which contains a large fireplace that was executed about the year 1530, in commemoration, it is said, of the Battle of Pavia. The lower part, in black and white marble, is of a good design, while the upper part, designed by a painter and executed in oak, is a wonderful piece of workmanship, but as design it could hardly be worse. The painter in his sketch evidently gave free rein to his fancy, and never troubled about form or construction. Then came the carver, eager to show his prowess, and never slackened his efforts until he had given to the world undercutting and mitreings galore. A truly great achievement, no doubt, from the technical point of view!

A visit was also paid to the Chapel of the Holy Blood, a small, two-storied church, which contains some fine early Flemish pictures, but it is of no great architectural interest, save for the lofty crypt, built in the latter half of the XIIth century, and the late flamboyant staircase, which leads up to the chapel on the first floor.

Various other buildings, too numerous to mention, were visited and sketched during the course of the day by the members of the party individually.

TUESDAY, AUGUST 11.

The value of a good first impression seems rarely to be considered in the approach to a town from its railway-station. But at Coutrai, where Tuesday morning was spent, the prospect on arrival was a very inviting one. The first buildings that met the gaze of the party are modern and by no means grand, and the pleasant effect was entirely due to their lay-out, which consists of a large semi-circular space in front of the station, with a bright bed of red geraniums in the centre, and three radiating streets. Of these the middle one leads to the Grand' Place, and past the old Merchants' Hall, which is now in process of restoration and transformation into a library and museum. This building, some 200 ft. long by about 40 ft. broad, was erected in 1545, and consisted of shops on the ground floor, with the big hall above. The floor of the latter is supported in the middle by a long row of simple late Gothic columns and arches, which give considerable effect to the otherwise plain ground floor. But this visit was only a passing one, as the party was on its way to the Hôtel de Ville, at the north-west corner of the Place. This is a much-restored XVIth century Gothic structure containing two very fine old chimneypieces, of which the one on the first floor is especially remarkable. It is entirely covered with sculptured panels arranged in three tiers, of which the upper one, of wood, represents eight virtues, the middle one, of stone, eight vices, and the lower, also of stone, the torments which follow in the wake of the latter.

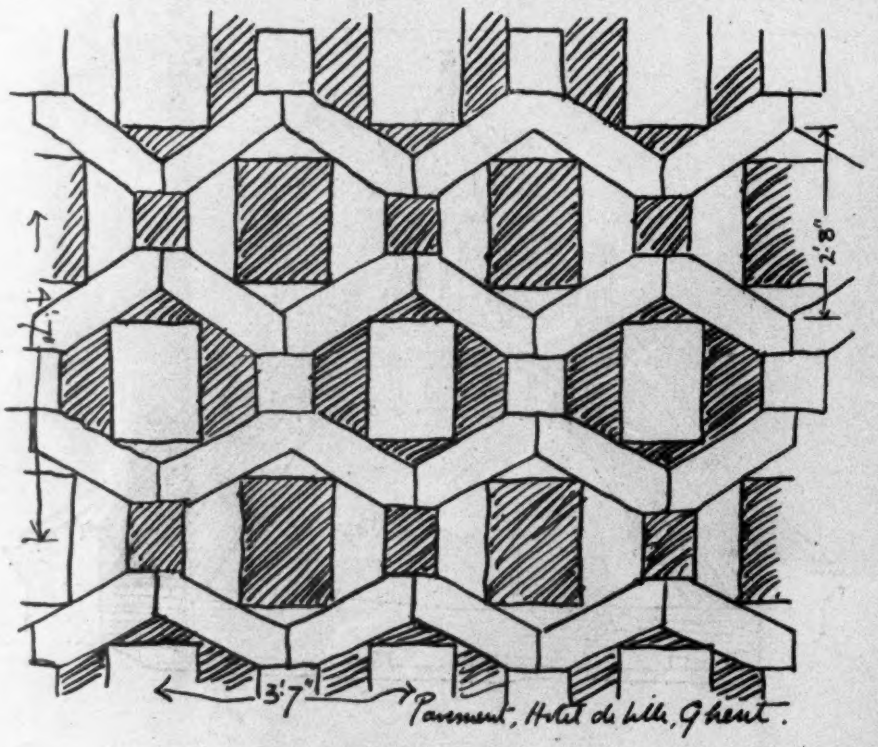
Coutrai seems to be a very interesting old town, offering many opportunities to sketchers, but the visit was a very hurried one, and there was little time for anything beyond mere sight-seeing. The fine west tower of the Church of St. Martin, with its bizarre slate-covered top, which cannot correctly be described as a spire, nor yet as a lantern, for it partakes of the nature of both, with a flavour of orientalism thrown in, was the most striking object in the town. The church is entered through a very large west door under the tower, and is of the "hall" type, the nave and aisles being vaulted at the same height. This part of the church, rebuilt after a fire in 1862, was originally erected early in the XVth century, but the chancel, which has a triforium and clerestory, is older. Another interesting church is that of Notre Dame, though its interior is rather a medley. It was originally built in the XIIIth century, but the chancel and various other parts of the building were cased in marble in the XVIIIth. Here a very good, and rather French, version of the Ionic order is employed, though of course it is ridiculously out of place in a Gothic church. In a large late XIVth century chapel on the south side there is a collection of portraits of the Counts of Flanders painted on the walls, and there are also some valuable pictures in the church, including a very good Van Dyck, "The Raising of the Cross."

Visits were also paid to a fine pair of old fortified towers on either side of a bridge over the river Lys, and to a picturesque little convent near St. Martin's Church. Some of the party also walked to a park on the outskirts of the town to see a modern monument erected to commemorate the Battle of Spurs, which was fought, in 1302, outside the walls of Coutrai. This is a fine piece of sculpture so far as the figures go, but fails in general design, because of the complete absence of any architectural element in the pedestal, though it carries the principal figure and is the most important mass in the composition.

The party left Coutrai about mid-day and took train for Oudenarde, arriving there in time for lunch. Here, again, the visit was so short that to see the town and make a sketch as well was hardly possible. But for this shortness of time neither the Belgian railways nor the secretaries of the Excursion could be blamed, and the fault, if fault it were, lay rather in the hospitality of the proprietor of the Hôtel de la Pomme d'Or, who provided the party with a very lengthy, though very excellent, lunch at surprisingly small cost. The majority of the members, however, visited the two most important buildings in the town, the Hôtel de Ville and the Church of St. Walburga. The former makes a very imposing end to the Grand' Place, and is an elaborate Gothic structure with a steep pitched roof, built about the year 1525. The front consists of seven bays, of which the centre one projects about two-thirds of its width and carries a very rich tower, with a large openwork crown and a figure on top. The side is not so well designed, and is rather a jumble of parts, but on the whole this building is much finer than the Hôtel de Ville at Bruges, for the niches and canopies—the figures are wanting—are here used in their proper position, on the buttresses dividing the bays, and not plastered against plain wall space. Inside the building there are more fine fireplaces, and a very rich François 1^er^ internal porch, something like the well-known one at Broughton Castle, only much more elaborate, rather bigger, and having all the panels, both in the door and on the sides, twenty-eight in number, carved with different designs. At the back of the Hôtel de Ville the old Cloth Hall projects, and is now only remarkable for its roof, a clever piece of carpentry, with tie-beams nearly 18 in. square, but no king or queen posts.

The tower of St. Walburga is very fine, but the curious feature of this church is the junction of older and later work. It looks almost as if the chancel of one church and the nave of another had been stuck together, though matching each other in breadth only, but not in height. The XIVth century nave, now glorying in a restoration of cast-iron exactitude, exists intact to just beyond the western aisles of the transepts, and then is suddenly cut off by a perfectly straight line across the building, on the other side of which stands the late Romanesque chancel, equally intact.

In general aspect these two towns, Coutrai and Oudenarde, are very different from Bruges. They contain much more classic work, and have not the same self-centred mediævalism which is so characteristic of Bruges. Stone is more freely employed, and stepped gables are fewer. Thus Tuesday's visits came as a very pleasant change after two whole days in Bruges, and showed the party something of the variety that is to be found in Flemish architecture.*




ADDITIONS, ST. NICHOLAS'S CHURCH, PLUMSTEAD.—Additions to this church have been carried out by Messrs. Greenaway & Newberry, architects, of London, with Doulting stone from the Chelynch beds of the Ham Hill and Doulting Stone Company, Ltd. The builders were Messrs. J. Dorey & Co., of Brentford.

DUNDEE UNIVERSITY COLLEGE.—An addition is about to be made to this college by the erection of the Peters Electrical Engineering Laboratory. The laboratory, which is planned by Messrs. Mills & Shepherd, architects, will be erected to the north of the physics laboratory, at present in course of erection. The building will be constructed of Fife Freestone and Dumfries red stone. The ground floor is principally set apart for the machinery, and consists of a battery-room, high-tension instruments, alternating currents, and dynamos and motors, while on the first story is placed the lecture-room, photometric gallery, and testing-room. The building itself is to cost 2,792*l.*, and a sum of 1,300*l.* is to be spent on the equipment.

* This report will be concluded in our next issue.

## COMPETITION FOR HIGHER ELEMENTARY SCHOOL, HOYLAKE.

A COMPETITION has been held for a Higher Elementary School at Hoylake, on the mouth of the Dee in Cheshire. The school was to provide accommodation for 150 boys and 150 girls, and was to approach nearly to the type of an ordinary secondary school. A separate building was required as a cookery centre containing also a caretaker's house and laundry. In the main building there was to be a manual instruction room on the ground floor, a laboratory and art-room on the first floor, and a dining-room in the basement. The site is a magnificent one, and fronts on to the main promenade, by which it is separated from the sea. The side of the site is bounded by a road which runs into the main Birkenhead road. It has recently been open sandhills, and is nearly level.

Fifteen architects were invited to compete, and Mr. Beswick, the County Architect, was invited to act as assessor. The scheme selected by him is by Mr. Edmund Ware, of Liverpool, and the Education Committee has adopted the very unsatisfactory course of only exhibiting the drawings submitted by the successful architect. It is thus impossible to say whether the best design has been selected, and we can do little more than criticise Mr. Ware's plan from a detached point of view. On the whole, it is a decidedly good scheme of the type with a central hall entirely surrounded by buildings, and only receiving light from clearstory windows 15 ft. 6 in. up over the two central classrooms on the front elevation, which faces N.E. Of the seven classrooms on the ground floor, five open off this central hall and two off the entrance corridors. But four of these classrooms face south-west away from the sea, which means that the scholars will be considerably troubled by the low afternoon sun, which, in an exceedingly sunny place like Hoylake, is a contingency that should have been guarded against. The head-master's room is well placed at the south-east corner of the building, with good supervision over the playground, but the manual instruction room is in rather a bad position, being insufficiently isolated from the central hall, nor over well lit, and provided only with a small outside porch and no place for cloaks of outside students.

On the first floor the lecture-room and laboratory also face south-west, as well as one class room, and the laboratory is insufficiently cut off from the lecture-room as regards smells. The author, however, we think is justified in placing his dining-room and kitchen on this floor, with a cheerful outlook over the sea, instead of dismally in the basement as suggested; it also gives him a chance of balancing his plan upstairs by making this dining-room balance the art-room, which is placed over the manual instruction room.

The assistant masters' room on this floor is ill placed, having no lavatory near it and no supervision over the playground. On the whole, with the exception of the south-west aspect already alluded to, this main block is well planned, and it is well placed on the site, being brought forward and occupying nearly the whole of the north-east part of the site; the space between it and the promenade is shown as grass. The cookery centre, which is placed on the south-west corner of the site, effectively screens the latrines, and thus the buildings present two good fronts to the streets.

Though it is not possible to speak comparatively about the plan, the elevations can be discussed as they stand, without any need of comparison. They are diligently symmetrical and of the sort to make one feel tired—tired of them one cannot help being, considering the innumerable schools of this type of design which have been run up all over the country during the past twenty years. One would have thought that a small seaside town like Hoylake (which contains one or two pleasant older buildings engulfed in a sea of modern trash) would have given an architect some idea of what was suitable—a gabled treatment with pebble-dashed walls and local stone dressings—white-washed walls with unbroken wood cornice, and hipped roofs of rustic slate, or grey bricks, with stone-flagged roof, or several other schemes might be suggested which could have been built at no more expense.

The drawings have been on view at Hoylake during the past week.

## Legal Column.

### THE LONDON BUILDING ACT.

THE litigation in the case of Attorney-General *v.* Metcalf and Greig has taken a somewhat remarkable course. A building was erected upon a corner site abutting on two streets, Moscow-road and Salem-road. As regards the building facing Moscow-road, and for a return of 40 ft. down Salem-road, no question was raised, but at some portions of the structure further down Salem-road the building was raised to a greater height than the width of the street, 40 ft., but recessed back from the street. The question arose whether sect. 49 of the London Building Act, 1894, had been infringed. That sect. provides, "After the commencement of this Act no existing building (other than a church or chapel) on the site of a street laid out after August 7, 1862, and of a less width than 50 ft. shall, without the consent of the Council, be raised, and no new building, without the consent of the Council, be erected, on the side of any such street, so that the height of any such building shall exceed the distance of the front or nearest external wall from the opposite side of such street." The judge in the Chancery Division, in applying the Act, treated the various portions of the building separately, and included the recess in measuring across the street, and thus held that the building did not exceed the height limited by the Act (see the *Builder* Notes, August 3, 1907). The Court of Appeal dissented from this decision, holding that the fact that there is a recess does not vary the meaning of the words used in the section, "the front wall of such building" (see the *Builder* Notes, November 16, 1907), but the Court referred the case back for the consideration of the County Council. The County Council gave consent to the retention of the building as it stood, and the plaintiffs on whose behalf the original action was brought appealed to the Tribunal of Appeal against this consent. The proceedings before the Tribunal of Appeal were given in our reports (the *Builder*, August 1 last), and it will be seen that it was argued that the consent of the Council could not be given *ex post facto* after the building was erected, and sect. 48 of the Act was relied upon, which says that the consent shall not be acted upon until twenty-one days after the notice of such consent has been published and served. The Tribunal of Appeal has dismissed the appeal, but the grounds of the decision have not yet, so far as we know, appeared. This decision raises a very important question, as, if a consent can be given *ex post facto*, persons "aggrieved" are deprived of the prior hearing which sect. 48 seems to intend to give them. In the recent case of London County Council *v.* Spink (the *Builder*, May 30) the County Council contended that a deposit of plans under sect. 7 of the Act of 1905 was an absolute condition precedent to the approval of the plans or the right of appeal, but the Divisional Court held the section to be merely directory. Such sections are, however, on a different footing to those now in question where the rights of third parties are affected, and the point now raised will require careful consideration when the grounds of the decision are fully known.

### DEFECTS IN PAVEMENTS.

A point of some importance arose in the case of Hartley *v.* Mayor, etc., of Rochdale (current "Law Reports") as to the liability for an accident occasioned by a defect in a pavement. The Corporation was the water authority, and the plaintiff sued them for damages for an injury sustained by her from what the County Court judge found was a defect in the pavement caused by the defendants not having duly performed their duty under sect. 32 of the Waterworks Clauses Act, 1847, which was incorporated by the defendants' special Act. In October, 1904, the defendants had removed and reinstated a stop tap box in the pavement. In July there had been a subsidence in the flags round the box, and the defendants had requested the District Council to make it good for them, and the Council had done the work. The accident to the plaintiff occurred in June, 1907. Sect. 32 of the Waterworks Clauses Act provides that when the undertakers break up the pavement they shall reinstate it and make it good and keep the same in good repair for three months thereafter, "and such further time, if any, not being more than twelve months in the whole, as the soil so broken up shall continue to subside." The defendants contended that as more than twelve months had elapsed since their original interference their liability had ceased, and if any one was liable it would be the District Council as the road authority. In this case the Divisional Court held that there was some evidence to justify the finding of the County Court judge that the pavement had not been made good either originally by the defendants or within the period of their liability by the Council acting as their servants, and that this being the case they remained liable, and that if the road authority had also been remiss in allowing the pavement to remain in a dangerous condition this would not relieve the defendants from liability. It must be remembered that even had the road authority been remiss and allowed the road to remain in a dangerous condition, for mere "nonfeasance," no suit would lie at the instance of a private individual (see Maguire *v.* Corporation of Liverpool, the *Builder*, February 25, 1905).

## THE BUILDING TRADE DEPRESSION IN GERMANY.

MR. F. P. KOENIG, British Consul-General for Westphalia and the Rhenish Provinces, in his annual report to the Foreign Office, remarks that building has come to a deadlock owing to the tight money market. In the town of Düsseldorf, for instance, in 1906, 1,436 new buildings were erected. In 1907 only 1,145 new buildings were put up or were in course of construction, most of which were erected during the first nine months of the year. Since October, 1907, practically no new buildings have been begun. The main reason for this is the state of the money market and the insufficient immediate profits derivable from buildings at present. The police building laws have become more stringent. The height, size, style, in fact the whole construction and plans of a house must be approved by the municipal building commission before a licence to build is granted. During the erection of a building the superintendence on the part of the authorities is very strictly carried through, so that builders have a difficult time, and it is not an easy matter to build and to satisfy the demands of all interests concerned. In Düsseldorf land is very expensive. The municipality is a large landowner; hence landed property is scarce in the market and expensive. In building material the trade was as slack as in the building trade itself. Bricks of any sort were an actual drug in the market, and brick-kilns appear to be at a comparative standstill. Trade in glazed wall tiles has been very poor. Manufacturers of plate-glass have also had a slack time, and have been obliged to reduce their prices by 10 per cent. The export prices, indeed, were better than those in the home market. There have been great strikes in the marble-cutting factories, which were only settled after thirteen weeks of actual deadlock, which, of course, dislocated the trade entirely. It was to be hoped, for the sake of the trade generally, that the money market would return to its normal level so as to enable builders to get money at reasonable rates.

THE BUILDER

AUGUST 22, 1908.

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## THE BERLIN HISTORICAL CONGRESS.

THE second international Congress of Historical Sciences was held in Berlin from the 6th to the 12th inst., the first having taken place at Rome five years ago, in April, 1903. There was a much larger attendance at Rome than at Berlin, partly, no doubt, owing to the fact that the Easter season is that at which, apart from congresses, a visit to Rome is preferred by the majority, and partly also because the railway facilities offered by the Italian railways were very considerable, not only for the journey to Rome and back, but also for excursions about Italy, whereas for the Berlin Congress no reductions on the ordinary fares were granted. These considerations did not, however, deter the more serious students of history from becoming members of the Congress. There was a good attendance of many of the leading historians from Germany itself, while other countries were fairly well represented, the United Kingdom providing quite its due proportion. Among the bodies represented were the Universities of Oxford, Cambridge, Dublin, and St. Andrews, the British Academy, the Royal Historical Society, the Society for the Promotion of Hellenic Studies, and the British Schools at Athens and Rome. This was only fitting, inasmuch as, on the invitation of the British Academy, supported by a resolution signed by all the British members present at the Congress, the latter decided to hold its next meeting in London in five years' time.

The standard of papers read was very high, and the only adverse comment that can be made is, that the lantern used to illustrate some of them in the archæological section was not a very good one; its lens indeed cracked during Dr. Heberdey's paper.

It was also deplored by some of those present that there was little or no opportunity for bringing forward resolutions in regard to subjects in which the individual sections, or the Congress as a whole, might be interested, and in regard to which an authoritative expression of opinion might have considerable weight.

The proceedings of the Congress as a whole, and of the sections were only very shortly and summarily reported, and no volume or volumes of proceedings will be issued, the intention being to leave free scope for the publication of papers in detail when and where it may seem best to their authors.

Among the papers read in the section of archæology (the only section of special interest to our readers) may be mentioned those of Dr. Wiegand, on paintings of the Byzantine period, near Miletus; of Professor Schrader on the archaic sculptures in porous limestone found on the Acropolis at Athens; of M. Perdrizet on archæological research in Macedonia; of M. Maspero on the conservation of monuments in Egypt; of Dr. Grenfell on his discoveries of papyri; of Professor Körte on later South Etruscan art; of Mr. H. Stuart Jones on the historical interpretation of the reliefs of the Column of Trajan; of Dr. T. Ashby on the ancient aqueducts of the city of Rome; of Mgr. Wilpert on the mosaics of S. Maria Maggiore at Rome, and of Professor Fabricius on the exploration of the Roman frontier fortifications (the *Limes*) in Germany. Professor Haverfield's paper on the analogous fortifications in Britain, like that of Herr Ritter von Töply, on mechanical apparatus of the imperial period, fell out, owing to the inability of its author to be present.

The organisation of the Congress was good, though, owing to the comparatively small attendance, it was by no means tested to its full capacity, and the wanderings of its members through the German capital, and their researches in its museums and libraries, were greatly facilitated by the excellent guide-book and plan of Berlin which were distributed to them, and by the kindness of the museum officials, who organised special exhibitions, and conducted parties through the various departments.

Mention must also be made of the cordial hospitality received by the members of the Congress. About a hundred of them had the honour of an invitation from the Emperor to lunch at Potsdam, where, in his absence at Cronberg (where the meeting with King Edward took place) they were received by Prince Frederick Leopold, who had represented the Emperor at the opening meeting of the Congress. A reception was also given by the representative of the Imperial Chancellor, and the city of Berlin offered a reception to some members of the Congress, the rest being invited to a special performance of Mozart's *Figaro* at the new opera house. There was a considerable amount of private hospitality, which gave opportunity for the making of new acquaintances and the renewal of old ones, and British members of the Congress will entertain very pleasant recollections of the kindly welcome with which they were received, and hope that the next meeting, in London, may not be an unworthy successor to that which has just come to an end.

## TIMBER-GROWING IN BRITAIN.

IN connexion with the meeting in Edinburgh recently of the Royal Scottish Arboricultural Society the Right Hon. Sir Herbert Maxwell gave an address on "The Forest Resources of the United Kingdom." Alluding to the need for a speedy reform in the management of our woods, Sir Herbert remarked that the urgency of the matter arose from three causes, viz.:—(1) The rapidly increasing demand for timber in the United Kingdom; (2) a corresponding increase in the consumption of timber in certain other countries; and (3) a serious diminution in the available timber supply in all accessible parts of the world. As to the increase in British consumption, he exhibited a table showing the increase of the quantity of our timber imports during the last twenty years. Much of the timber, he pointed out, was quite capable of being grown in the United Kingdom. The table showed that there had been a large increase in the quantity of the imports of every class of wood product except unenumerated hewn wood, unenumerated sawn wood, and staves. But even where there had been a fall in the total quantity imported the enhanced price had swelled the total amount paid. The article of greatest consumption—sawn fir—was one that could be most readily produced in this country. We had neglected to do so, and consequently had not only sacrificed, as producers, the profit we might have secured by timely foresight, but we had to pay far more dearly as consumers. If anybody thought there was no cause for anxiety, that it did not matter where we got our timber so long as we were able to pay for it, let him lay to heart the warning uttered by the Departmental Committee on Forestry in their report in 1903:—"The world is rapidly approaching a shortage, if not an actual dearth, in its supply of coniferous timber, which constitutes between 80 and 90 per cent. of the total British imports." Coniferous timber rose 22 per cent. in price during the twenty years from 1885 to 1905. A plentiful supply of that class of timber was indispensable to all our principal industries. How many of these could be carried on at a profit if in the next twenty years timber rose another 22 per cent? And everything pointed to such a contingency. There was a rapidly-growing demand for an article of which the supply was running short. Some of our former sources of supply were already cut off. Thirty years ago we were drawing large supplies of timber from the German Empire. During that period the industrial expansion of Germany had been so great that, although the annual value of her forests was reckoned at 22 million sterling, she now required every stick of it for her own consumption. Not only so, but she had entered into competition with us as a purchaser, importing about 4,500,000 tons per annum of foreign timber, valued at 15,000,000*l*. As with Germany, so with the United States and Canada, where the forests were long considered to be inexhaustible, and doubtless would have proved so but for reckless lumbering. In all the circumstances it was difficult to conceive anything more economically urgent than that steps should be taken to develop our own neglected forestry resources.

# Illustrations.

## SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

OUR plates this week are devoted to a series of sketches made by Mr. W. Curtis Green, as in several former years, in illustration of some of the buildings visited by the Architectural Association in the course of their Annual Excursion, for which Bruges was this year the headquarters.

The Belfry Tower at Bruges is one of the most illustrated buildings in Europe, but it has been illustrated of late more by photographs than drawings. Our readers, however familiar with it, will be glad to have Mr. Green's drawing, an admirable piece of pen-line work. Like the equally celebrated Campanile at Venice, it is valuable from its associations and a certain crude picturesqueness rather than for its architectural design. The three stages of the tower have little architectural relation, and seem as if arbitrarily super-imposed without much consideration as to the general design or the proportion of the various parts to one another. Nevertheless, it will always remain a very interesting building.

The other sketches include the Hotel de Ville at Bruges, with its rich treatment of windows and canopied niches, and the grand tower of St. Martin at Ypres, to our thinking the finest piece of architecture illustrated. Mr. Green has also given us a very careful illustration of the interesting timber roof of the Town Hall at Damme, and an illustration of a deeply recessed timber arch under a gable in the Cloth Hall at Ypres, which as a curiosity was quite worth drawing, though in an architectural sense it illustrates the futility of carrying out in timber a form of building only suitable for stone. It would have looked better had there been some kind of moulding round the extrados of the arch, instead of the mere edge. The Skippers' House at Ghent is a very fine example of mediæval street architecture;

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IN THE MARKET PLACE OF BRUGES STANDS THE BELFRY OLD AND BROWN; THRICE CONSUMED AND THRICE REBUILDED, STILL IT WATCHES O'ER THE TOWN."
H. Courtenay Pratt del Aug 8-14-08.

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SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

imports of every class of wood product except unenumerated hewn wood, unenumerated sawn wood, and staves. But even where there had been a fall in the total quantity imported the enhanced price had swelled the total amount paid. The article of greatest consumption—sawn fir—was one that could be most readily produced in this country. We had neglected to do so, and consequently had not only sacrificed, as producers, the profit we might have secured by timely foresight, but we had to pay far more dearly as consumers. If anybody thought there was no cause for anxiety, that it did not matter where we got our timber as long as we were able to pay for it, let him lay to heart the warning uttered by the Departmental Committee on Forestry in their report in 1903:—"The world is rapidly approaching a shortage, if not an actual dearth, in its supply of coniferous timber, which constitutes between 80 and 90 per cent. of the total British imports." Coniferous timber rose 22 per cent. in price during the twenty years from 1885 to 1905. A plentiful supply of that class of timber was indispensable to all our principal industries. How many of these could be carried on at a profit if in the next twenty years timber rose another 22 per cent? And everything pointed to such a contingency. There was a rapidly-growing demand for an article of which the supply was running short. Some of our former sources of supply were already cut off. Thirty years ago we were drawing large supplies of timber from the German Empire. During that period the industrial expansion of Germany had been so great that, although the annual value of her forests was reckoned at 22 million sterling, she now required every stick of it for her own consumption. Not only so, but she had entered into competition with us as a purchaser, importing about 4,500,000 tons per annum of foreign timber, valued at 15,000,000*l*. As with Germany, so with the United States and Canada, where the forests were long considered to be inexhaustible, and doubtless would have proved so but for reckless lumbering. In all the circumstances it was difficult to conceive anything more economically urgent than that steps should be taken to develop our own neglected forestry resources.

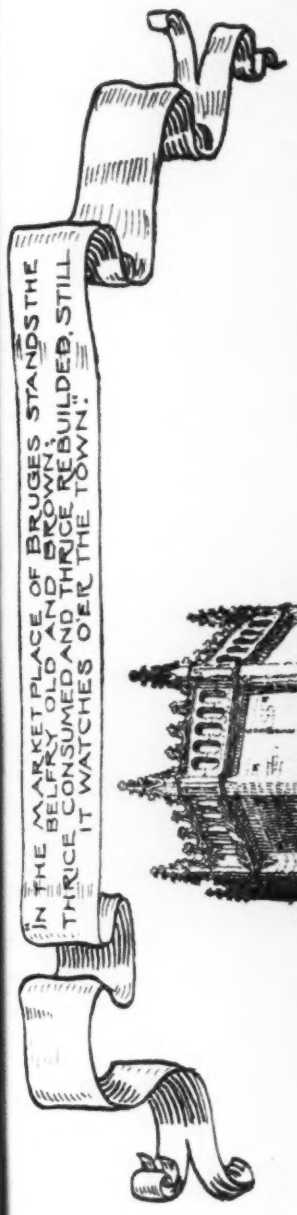
## Illustrations.

### SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

OUR plates this week are devoted to a series of sketches made by Mr. W. Curtis Green, as in several former years, in illustration of some of the buildings visited by the Architectural Association in the course of their Annual Excursion, for which Bruges was this year the headquarters.

The Belfry Tower at Bruges is one of the most illustrated buildings in Europe, but it has been illustrated of late more by photographs than drawings. Our readers, however familiar with it, will be glad to have Mr. Green's drawing, an admirable piece of pen-line work. Like the equally celebrated Campanile at Venice, it is valuable from its associations and a certain crude picturesqueness rather than for its architectural design. The three stages of the tower have little architectural relation, and seem as if arbitrarily super-imposed without much consideration as to the general design or the proportion of the various parts to one another. Nevertheless, it will always remain a very interesting building.

The other sketches include the Hotel de Ville at Bruges, with its rich treatment of windows and canopied niches, and the grand tower of St. Martin at Ypres, to our thinking the finest piece of architecture illustrated. Mr. Green has also given us a very careful illustration of the interesting timber roof of the Town Hall at Damme, and an illustration of a deeply recessed timber arch under a gable in the Cloth Hall at Ypres, which as a curiosity was quite worth drawing, though in an architectural sense it illustrates the futility of carrying out in timber a form of building only suitable for stone. It would have looked better had there been some kind of moulding round the extrados of the arch, instead of the mere edge. The Skippers' House at Ghent is a very fine example of mediæval street architecture;


IN THE MARKET PLACE OF BRUGES STANDS THE
BELFRY OLD AND BROWN;
THRICE CONSUMED AND THRICE REBUILDED, STILL
IT WATCHES O'ER THE TOWN."

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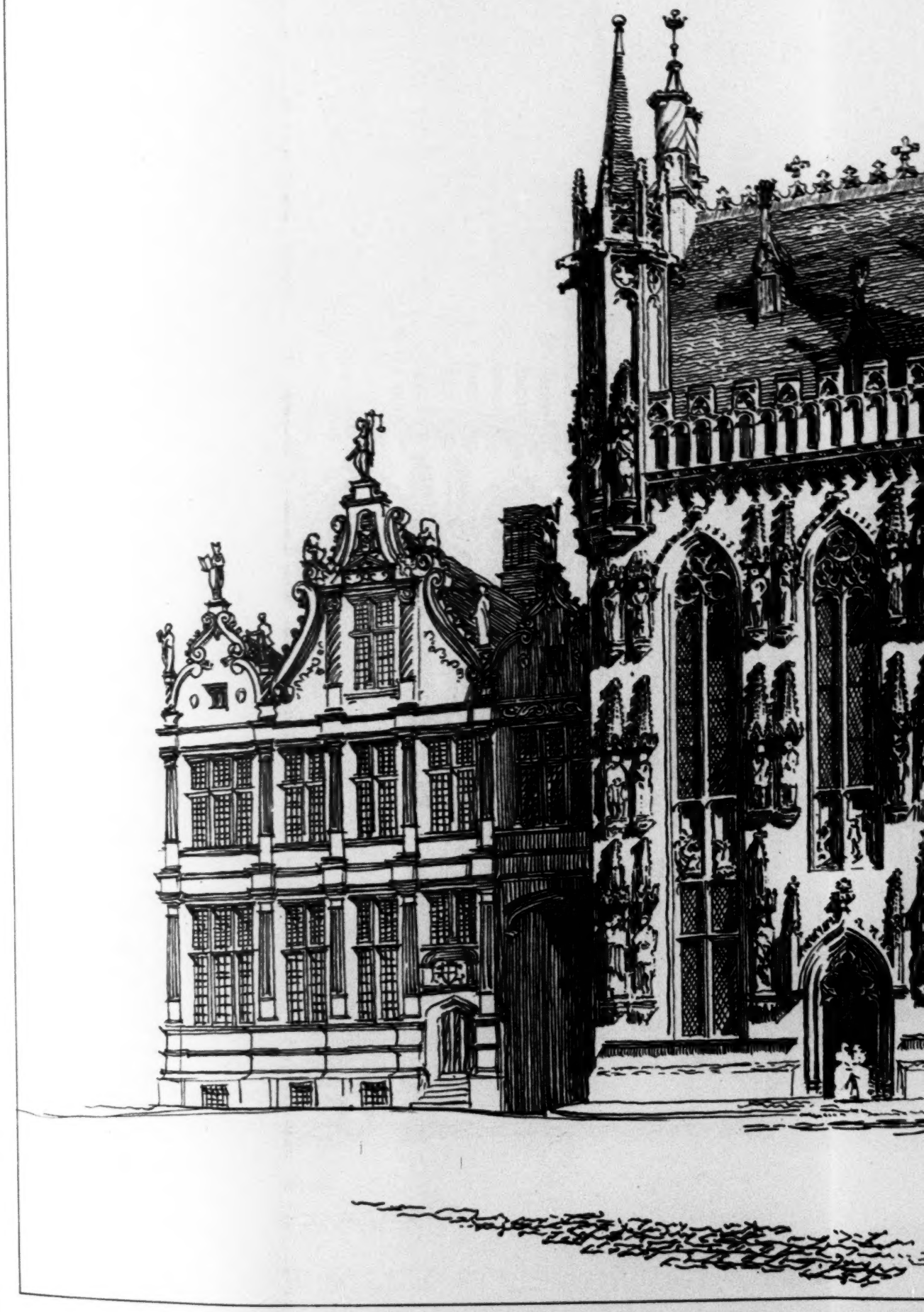
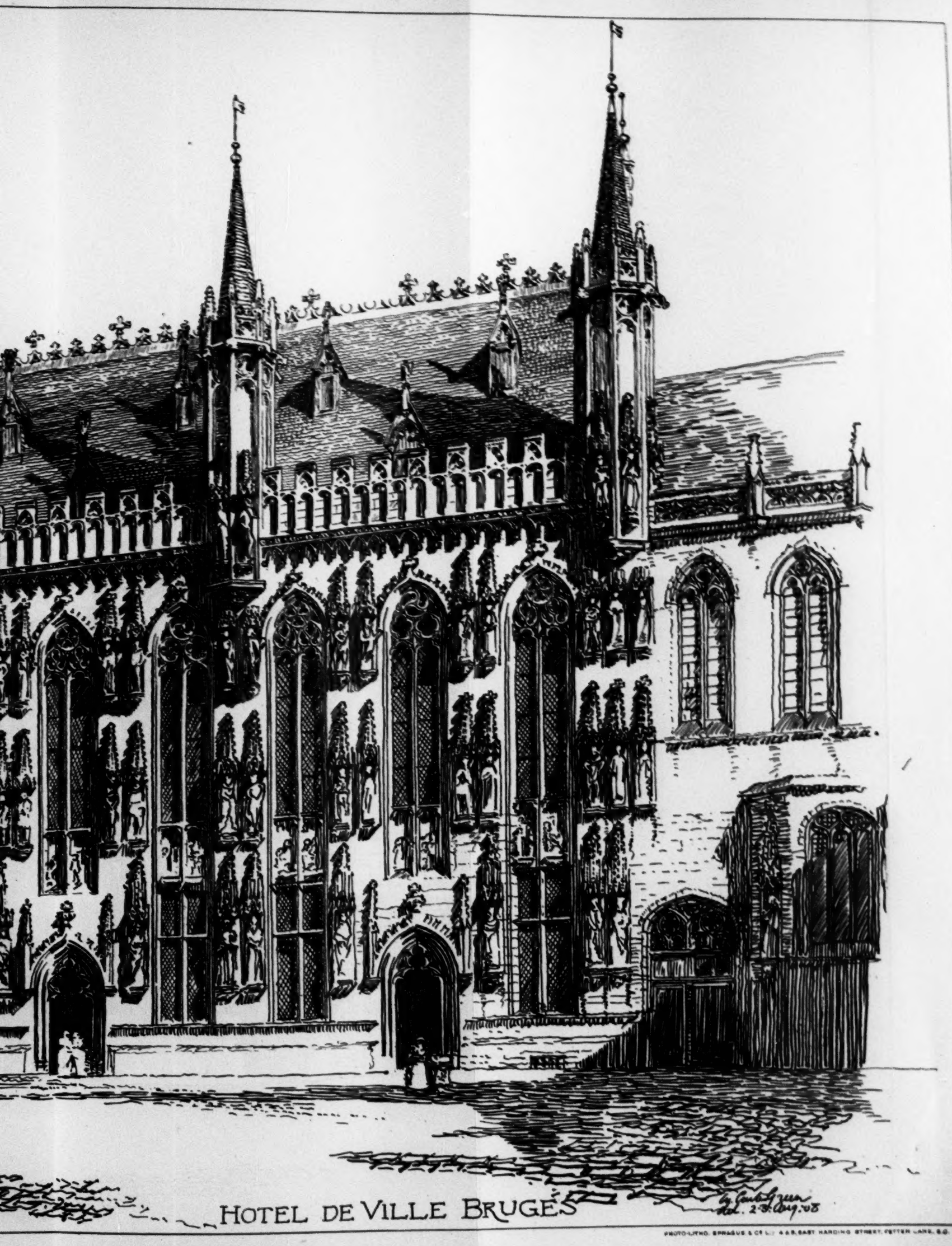
SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.





HOTEL DE VILLE BRUGES

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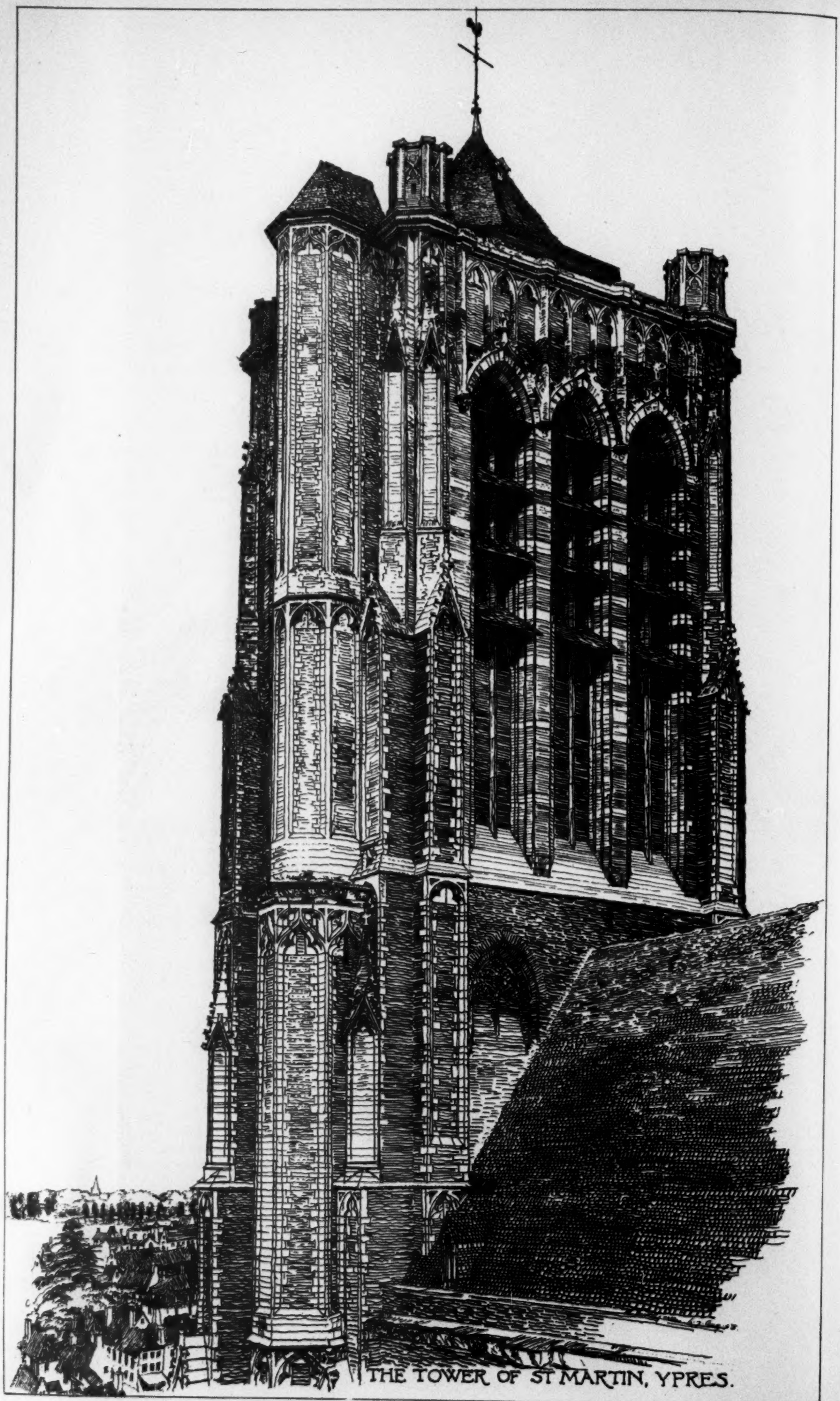
HES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

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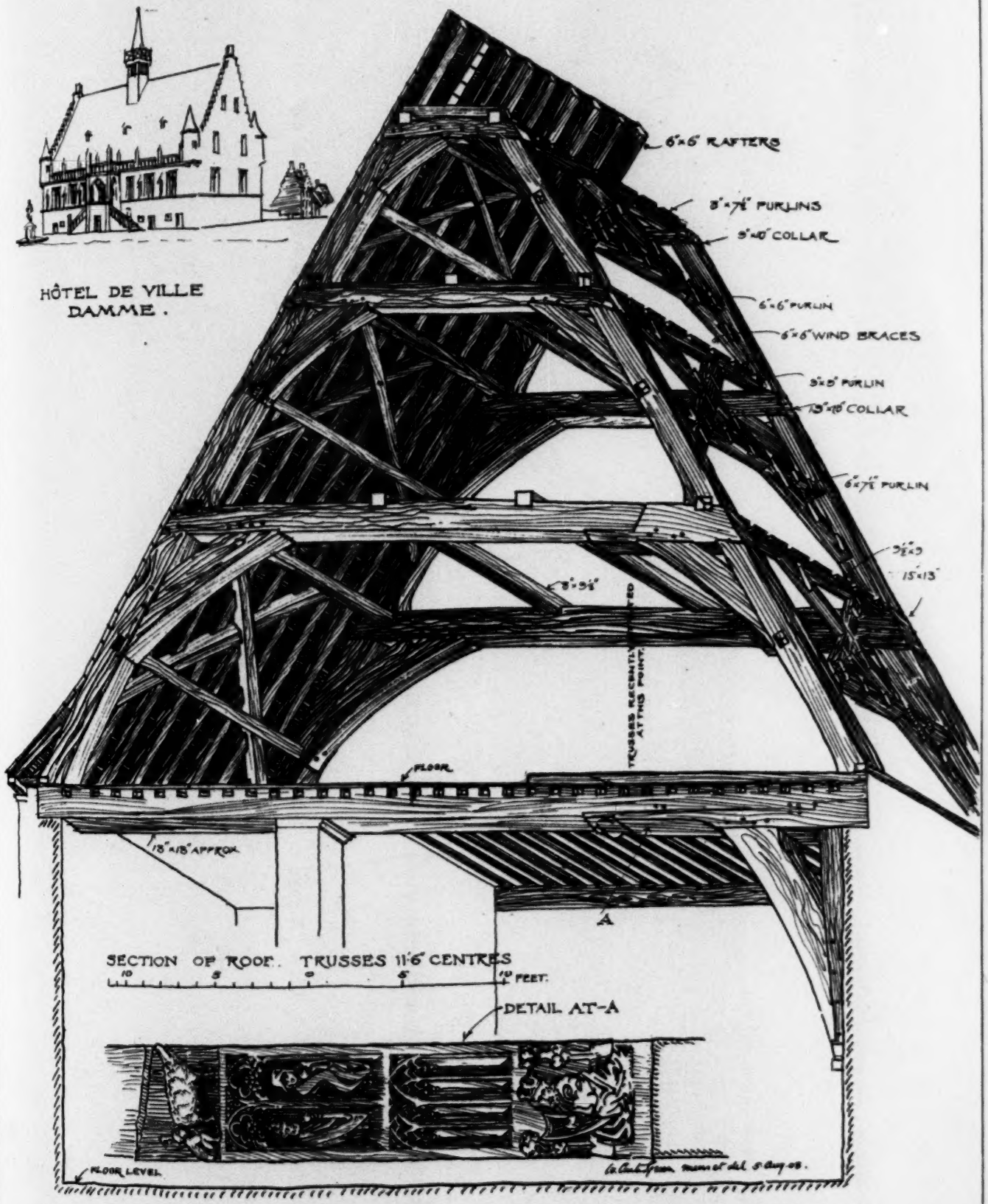
SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

HÔTEL DE VILLE
DAMME.

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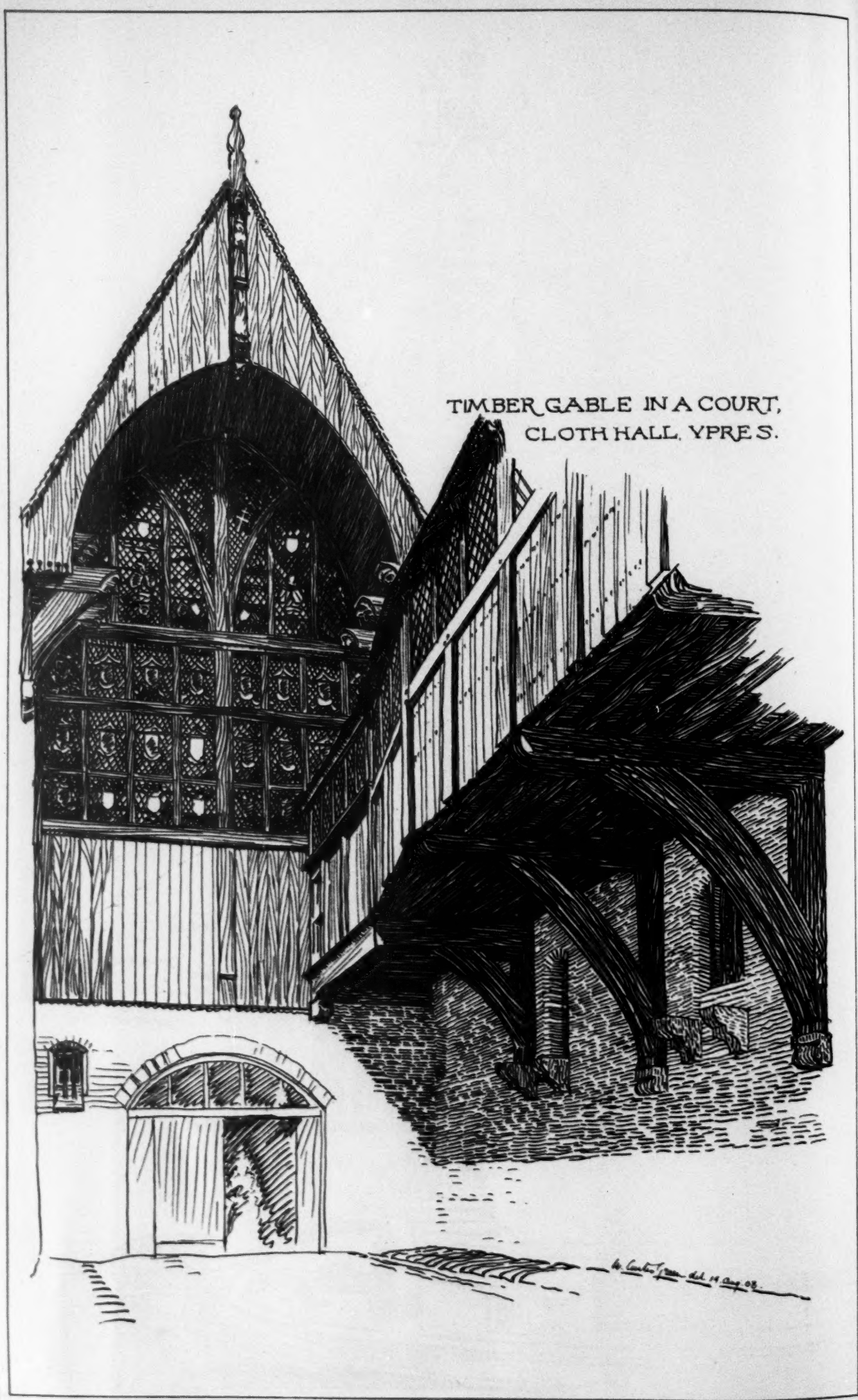


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SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

THE SKIPPERS' HOUSE, GHENT. 1531.

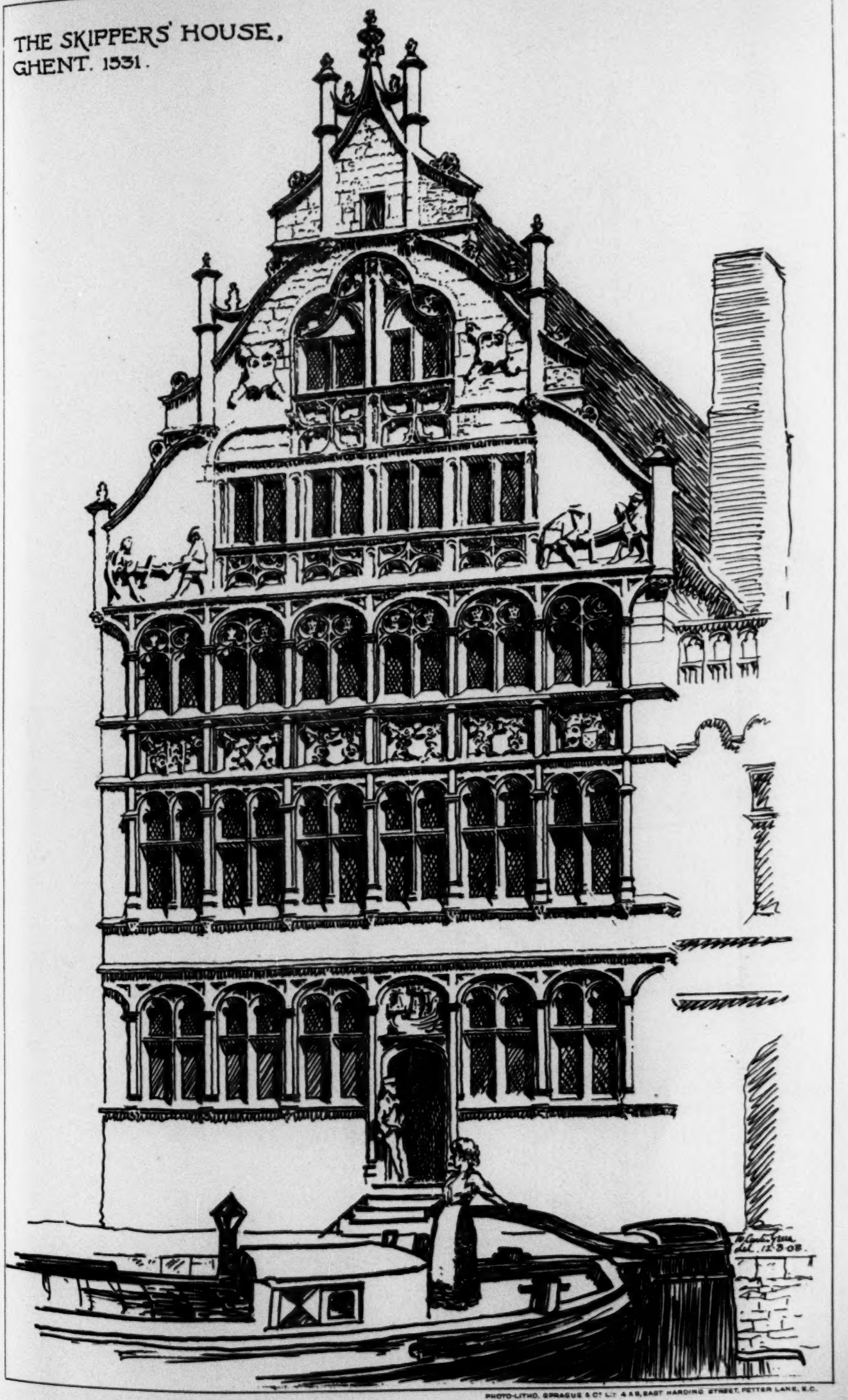

PHOTO-LITHO. SPRAGUE & Co LT 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

SKETCHES WITH THE ARCHITECTURAL ASSOCIATION EXCURSION.

it is not only picturesque but well designed, and does not require the associations of age for the toning effect of time and weather to give it interest. Those who would like to get some idea of the kind of life which went on among these old cities of Belgium in their earlier days should read Henry Taylor's drama, "Philip Van Artevelde," the scene of which is laid chiefly at Ghent and Bruges, and which gives a vivid idea of the fierce and turbulent mediæval life of the period.

## THE INTERNATIONAL ART CONGRESS.*

### FOURTH DAY'S SITTING.

*Teaching of Drawing to Children.*

THE papers and discussion at the sitting of the Congress on the Fourth day were devoted to the question of the teaching of drawing to children, and papers on the subject were contributed by Dr. G. Kerchensteiner (Munich), Mr. E. Cooke, Miss K. Phillips, Mlle. Truffot (Paris), Herr R. W. Bohling (Hamburg), Miss Rose Waugh, Herr R. Handler (Meissen), and Messrs. A. G. Hannah and J. Moffat (Scotland).

Dr. Kerchensteiner remarked that in history they found the same stages of development in diagramatic representation and the same order of progress in pictorial three-dimensional art in the earliest epochs of culture as existed to-day in uncivilised races. They found the same simple rhythmical arrangement or line ornament of elementary geometrical patterns and the same pronounced difference of talent between the sexes. He could only think of three women that had attained admitted eminence in painting—Madame le Brun, Angelica Kauffmann, and Rosa Bonheur. In the case of children, too, historically the greatest artistic attainments were combined with other high intellectual gifts. He instanced Leonardo da Vinci, Albrecht Dürer, Michelangelo, and Titian.

Miss Rosa Waugh thought the three primary motives of the teaching of drawing should be to impart a constructive attitude of mind, to impart an understanding of natural perspective, and to give an insight into the essentials of good draughtsmanship. In her opinion a child that was old enough to be taught at all was old enough to be taught practically, however simple the matter might be. The compromise between work and play advocated so much in these times destroyed at the outset a sense of work in the child's mind. The studies of construction and perspective as preliminaries to the art of drawing should be regarded as inseparable. A study of construction without that of perspective inclined to plan drawing, whilst a study of perspective without that of construction tended to destroy the natural sense of solidity which all perspective drawings should convey.

Messrs. A. G. Hannah and John Moffat emphasised the importance of placing coloured objects before the children who, if given a few crayons, would make a very fair attempt at imitation. In support of this view the author quoted the words of Mr. Geo. Clausen to the Royal Academy students, viz., "A picture that is well drawn and modelled only will interest, but will be passed by in favour of colour, for colour touches us more deeply; its sense is more instructive. A child will be excited by colours, but indifferent to form."

Mr. T. Delgaty Dunn disagreed with Miss Waugh and protested against placing anything between the child and the child's observation.

*Teaching of Drawing.*

The teaching of drawing was the subject discussed on the following morning, when several papers were read.

Dr. J. P. Haney, Director of Art and Enamel Training, New York, U.S.A., speaking of "Drawing as an Aid to the Teaching of other Manual Branches," said that drawing was the syntax of the arts and the foundation of all the manual branches. It was a form of instruction designed to teach the child to see, to judge, and graphically to express his judgments. Study of the child had shown that drawing to him was a real medium of expression—a language in which he early conversed both eagerly and naturally. It was a means whereby he expressed graphically things which his limited vocabulary would not permit him to tell in words. The knowledge which drawing gave was of signal service in all constructive work. Constructed forms must be made from plans, and those plans must be drawn. In connexion with his work in cardboard, metal-tape or wood, the pupil should gain the skill necessary to enable him to make working drawings. Simple instrumental drawings might be taught in this relation, but of equal, if not greater, importance was the making of free-hand working sketches. Little time would offer in the elementary school for any extended practice in instrumental work, but it was quite possible to give knowledge sufficient to enable the boy of fourteen to make from any simple model a free-hand working sketch properly lettered and dimensioned. In the more advanced classes instruction should also be given in the development from the working sketch or drawing of a perspective view of the model. Dealing with drawing as an aid in modelling, the lecturer remarked that any work in clay should be intimately related to that done in object drawing. The actual handling and creation of forms in the round should be part of the draughtsman's education. One whose fingers had travelled the heights and hollows of a modelled surface drew that surface both in its modelling and in its texture with a sureness which could never come to him who always saw his copy from afar. Drawing taught with modelling made the modelling truer and more full of action; modelling taught with drawing made the latter far more sympathetic in its rendering of form and texture. Related so intimately as scarcely to be separated was the teaching of drawing and design. Good drawing was, in short, an absolute essential to good design, and in the work of the school these two subjects should proceed together, the lessons of the one being constantly adduced in the teaching of the other. Speaking of drawing as an aid in æsthetic training, Dr. Haney said that the laws taught by design were the laws of beauty, and the love inspired was the love of beauty. To learn to love beauty one must learn to seek for it. The value of this æsthetic teaching in the elementary school was yearly becoming more marked. On the side of the individual it led to larger capacity for self-enjoyment, to higher standards of living, and to creative ability, invaluable in all industry. On the side of the State it appeared as one of the most important agents making for industrial supremacy. It not only trained the child in taste, but helped to infuse the element of beauty throughout the school and its work. It gave a desire for that which was appropriate not only in home decoration and in dress, but in the wider field which was concerned with the city's architecture, its parks, and monuments. Thus it made for a finer civic spirit.

Sir W. B. Richmond, K.C.B., R.A., read a paper on "The Teaching of Drawing." Commerce, he said, was a necessity, but in all great nations the arts had gone hand in hand with her success. The Treasury, vastly extravagant, in many respects often wasteful and experimental, was woefully niggardly when a question of art comes up requiring a relatively small sum of money to further it. A sum which would go a long way to promote schemes which the intelligent minority of the public would assuredly applaud, if only it were given a lead, and it was the intelligent majority which was the backbone of a nation. It was to be doubted if the practical teaching of the graphic arts would ever assume a place proportionate to their value in any University; yet the history of art might be taught as an integral and indispensable part of education; the history of the arts of Egypt, Assyria, Greece, Italy, France, and England. It was a truism to state that the history of Egypt would be unknown to us save for its art; that Assyria had given us, through its art, the history of its kings, and to a large extent the history of its civilisation; the place that art took in Greece everybody knew; the influence of the arts on the grandeur of the Italian States would hardly be exaggerated. In France it not only was, but is, considered to be a natural and necessary form of culture, and our own English histroy proved to us, not only by the cathedrals, but elsewhere, that the graphic arts were practised and encouraged in England up to the time of Henry IV., and crafts, bearing as noble a record as those produced in Italy, at the same period and even later.

Art was in the hands of the dealers, who could promote or ruin a reputation, who could make cent. per cent. upon the labour of others, who could mar, and who did mar, the progress of modern art by the sale, at enormous prices, of indifferent old masters which the buying public, if it were taught to discriminate, would esteem at their proper value. In the meantime, art schools had been founded all over the country, the initial object of their foundation being to aid the manufacturer, that was to say, to supply the manufacturer with better designs than heretofore.

That object had in the main failed. Let them for a moment consider what a good teacher should be, indeed, what he must be, before he was fit to assume a mastership in cities, country towns, or in the manufacturing districts. He must be equipped with a wide range of knowledge; he must be able to handle many crafts; he must understand the limitations of the materials employed in them; he must be wise and sympathetic enough to encourage local industries, applying severest tests to each and all of them, from pottery to lace designs, from printing patterns on fabrics, from construction of buildings to sculpture and decoration, according to the various restrictions imposed by environment and local necessities. That the curriculum now being followed at South Kensington was more favourable than it was to answer such demands was undoubted, but the difficulty remained that the manufacturers were not sufficiently educated in good taste to recognise the difference between good and bad design; hence they, being employers, were more likely to mislead than to direct the taste of the public. It followed, then, that before the manufacturers could make use of the best designs, they must know what the best was, an apparently impossible circumstance in the hurry of the race for wealth. Cheap and bad design and ornament was worse than none at all.

"Venice and Genoa, as well as Florence, were great centres of industry. The merchant princes were cultivated men who not only appreciated, but understood, the great artists and designers who lived in their vicinity. Art and trade went hand in hand and were in their midst. It is well-nigh impossible to point to any article of manufacture, from printing on velvet to furniture, from a chimneypot to a palace, that has not some nobility of design or colour. It is machinery that has killed this habit of choice of the best; it has produced a poverty of design and monotony; it has produced goods which have no lasting endurance; it has well-nigh killed hand-work and introduced a new class of slavery into modern times. But we live where machinery is, and our duty is to raise the intellectual level of the manufacturer, to teach him that there is something more lasting for the human race than the striving for greater personal wealth. Many of our manufacturers have been University men, and, as time goes on, probably a still greater number will be so educated. It is surely, then, the duty of the Universities

* Continued from last week, page 186.

to endeavour to raise the standard of taste of the men who, in a sense, must be leaders. . . .

Of course, the ideal art education for those who follow it as a profession, either as artists or craftsmen, is apprenticeship, but this cannot be applied to the majority. Democracy has practically done away with apprenticeship, hence everyone has to learn more or less for himself. Granted that art schools are poor substitutes for apprenticeship, yet it is to them that we must look for advance and future success. It is obligatory, therefore, that the art schools in England should maintain a very high standard, that practical, earnest, hard-working students should be encouraged, and that the amateur should be discouraged. Fewer and more ardent students would be the result. If the training given were a severe one, serious in its aims and serious in its obligations, a far higher standard would be achieved in the annual competitions, and in time the manufacturers would recognise that they are dealing with a serious question, and not with a party of young ladies and young gentlemen who are amusing themselves.

To achieve such a result, drawing, which the great painter Ingres called the "probity of art," must be strenuously and scientifically taught. When a student can draw and understand the movements of the human frame, he will be able to draw anything from a plant to a tiger; he will soon learn by analogy. If he is not a master of the human frame, the chances are that all his drawings will be empirical. I wish to lay stress upon this, because we are told by many irresponsible critics that good drawing is "banal," that the boundaries of atmosphere are non-existent, as well as other jargon which incite students to idleness, and tend to degeneration. Art is more than a pleasant occupation for odd moments; it is a difficult science.

We English as a race have, I think, a more natural taste for colour than for form. It is our weak point, then, that we should develop; and somehow there is a sort of lurking prejudice against any teaching upon a scientific basis, it is anti-English. There is too much stress laid upon what is called genius; there is too much hard hitting against academical training, indeed, a kind of anarchical feeling is being bred against all forms of intellectual discipline. Without intellectual discipline no one can become a real artist. Hence, anatomy and the study of the human frame is being woefully neglected, and the drawings annually sent up for competition are not so good as they were, they are not so serious and not so intelligent. It is very easy to make a flourish, and to produce an effect quite misleading to those who have untrained eyes, but it is extremely difficult to draw scientifically or even intelligently, unaffectedly, and with absolute sincerity, without 'bluff'; and it is that which should be encouraged. In our schools I would have much more efficient, again I say, scientific, drawing, hard though it may appear to be, and much less of the clever sketching which is at present all the vogue in every school that I have visited. We may depend upon one thing and make it an axiom: 'The student trained upon scientific methods will always improve, the student who relies upon dexterity will infallibly deteriorate.'

And now let me turn from broad considerations and suggestions to more practical advice and detail.

Now, how can a master be trained to fulfil the necessary obligations that I have stated? In my opinion, only the severest tests will do this, and the entire absence of following any ephemeral fashions, however plausible, which may for the time being attract public attention. The best training given in the Royal College, in my opinion, is in the school of sculpture, architecture, and design, the least satisfactory in the schools apportioned to drawing and painting, which seem to be more or less out of touch with the others, being too much influenced by a modern craze for imitation, a suggestion perfectly justifiable in the hands of a master who has in early life gone through a severe academical training, but wholly misapplied in the case of young students who are as yet ignorant of the elementary laws of drawing and painting. Short cuts are misleading. Youth is the time for hard and drastic study; it is the time for the formation of habits, good or bad. It is the time for the direction of enthusiasm, for conveying it from momentary impulses into permanent channels; it is the time for strenuous stringing up of the mind while the faculties are docile, the energy strong, and impulsive experiments are capable of being directed into principles. There is no good teaching excepting that which is founded on a scientific basis. To cultivate only enthusiasm is likely to lead to nothing. To follow passing fashions must be a death-blow to permanent progress. Therefore teachers must be scientifically not ephemerally trained.

Whatever may be said in favour of the cultivation of individuality should not dismiss severe training upon an academical basis. By an academical basis I do not mean tricks or mannerisms, but a sound and scientific knowledge of principles, accompanied by strenuous and searching drawing, which to the uninitiated might appear to be hard and cold. This implies an exercise in accuracy. The learning of the grammar of any art, music, literature, or the graphic arts may be a dull process, but it is absolutely essential to final success. I have seen student after student with plenty of ability of an emotional kind, with ideas also either borrowed, and that is not to be deprecated in youth, or original, which is rare, entirely unable to express them with any style, because the grammar of style had not been acquired at the time when the hand and eye were most ductile. The faults discoverable in the works which are sent up for annual competition, the faults which are most prominent, are absence of style, inaccuracy of statement, and a general slovenliness of execution wholly to be deplored in the work of a student. If such faults can be shown by analogy, it is as if a schoolboy or an undergraduate of a university was to send up a paper to his examiners full of grammatical errors and ill-spelt. I doubt if such would be likely to obtain for the student the mastership in any school. And yet, is the grammar of difficult art so unessential that we can afford to promote into teachers students whose grammatical errors are such that even a lenient examiner could scarcely overlook them?

I am for making the tests for the students in training much more severe, and for raising the standard of work by students who are to apply for masterships. Where a master is lenient or ill-equipped, the pupils are certain to be lazy and incompetent, and I am bound to say that in the competitions in which I have assisted in judging, I feel much more inclined to blame the masters than the pupils. . . .

One is down upon a carpenter who executes clumsily or carelessly, one ought to be equally down on an artist who does likewise. It would be good if Carlyle's maxim 'Genius is a power of taking pains' were more inculcated and remembered in an age when a kind of democratic anarchy seems to be applied more or less to all matters of education. No man is cleverer for being ignorant, and no artist will ever be able really to express what he has in him, unless the foundations of his education are well and securely laid. It is perfectly true that the school of Ingres produced artists who, as they found their own ego, deviated from the methods which they had learnt under that master, but I question if any single one of them would tell us that the hard drilling in drawing given to him by Ingres was waste of time, any more than the most modern of musicians would rebel against contrapuntal formulæ which he studied from the old masters in his youth: Drawing can be taught, style can be learned, by constant study of the great masters, good taste can be inculcated. Genius can be provided with means to express its yearnings, and the public can be educated by keeping constantly the best examples of any art before it. We are but poor judges of what our own time is doing, we cannot say whether it will die or live; we have the great art of the past to guide us, and we know the principles which underlie the technical training which produced masterpieces. They were scientific!

It must be remembered that the art schools in England under the headship of the Royal College of Art were not instituted for the purpose of providing picture painters, sculptors, or architects. However they may have done so incidentally in the past, and may continue to do so in the future, that cannot, and ought not, to be stopped while the main intention of their service is to provide a general knowledge of the crafts for the services of manufacture in various districts, and, as I think, in accordance with the kind of manufacture proceeding within a district. . . .

If what I say is true, how can we be too careful of the men who are to hold the responsible position of training for the crafts of England at a moment when bad work is uppermost, specious design is regarded as interesting or novel, and that which appeals to a very debased taste is held to be worthy, or at the most good enough, in certain circles?

Stimulate the general public to discriminate between what is true and what is false in art, and the student to understand that before he can run he must walk, and that the only means by which he can be provided with a successful after-career as an artist, in whatever branch he may choose, is by scientifically, not empirically, mastering the most difficult art of drawing with combined accuracy and feeling."

*Drawing in Elementary Schools.*

Mr. T. P. Sykes, M.A., Headmaster of the Great Horton Council School, Bradford, contributed an interesting paper on "Drawing in Elementary Schools." On March 16, 1853, the following letter was, he said, issued from the "Office of Committee of Privy Council on Trade":—"My lords can have no hesitation in stating that the time has arrived when the consideration of the important question of supplying scientific and artistic instruction to the industrial classes of this community, in a more systematic manner than has hitherto been possible, can no longer be postponed." Artistic instruction for the industrial classes was thought to be eminently desirable fifty years ago, and it was no less desirable to-day. The need was as great now as it was then. The children of the industrial classes filled the elementary schools of this country to the number of over six million scholars. It was from the ranks of those scholars that the industrial classes would be recruited, and it was therefore to these that we ought to offer in the elementary school the best artistic instruction possible to fit them for their future positions in the industrial world. Fifty years ago the woollen and cotton factories were eating up the child life of the nation at the ages of eight, nine, and ten years, and they were doing the same to-day at twelve years. There could be no artistic instruction under such circumstances. Artistic education covered the whole field of the life of the child. It followed him to his home, and noted the influences by which he was there surrounded. It took note of his physical growth and development, his food, his dress, and his games. Then it followed him to the school at which, under compulsion, he was bound by law to attend. In the home, and with the home surroundings, the State might have little power and less inclination to interfere, but even in this connexion a broader view was happily being taken at the present time, and it was being

recognised that the community was responsible to a great extent for the slum life which it harboured. In the school where attendance was compulsory the State should be the powerful protector and guardian of the child. Bearing these things in mind, therefore, the State should have determined first of all that the children of the industrial classes should be housed in well-built, roomy, airy, well-lighted schools. If houses were found to be unsatisfactory in many cases that would be all the more reason why the school house, considered simply as a building, should exercise a corrective influence upon the child. To take an example from many that lay to hand in the towns and villages of this country, there was nothing uglier or more depressing than the sight of the dull, dreary rows of cottages in a colliery village. The children of the village were in the fresh air, but they were not of it. They lived and played on the grimy shale and cinderheaps which were continually growing all around them. A school for these children should be built some distance away from the village. It should lie amongst fields. It should be of commanding appearance, well built and chastely decorated. The interior of the building should be in keeping with its outside appearance. The spacious classrooms should be tastefully decorated. The teachers should be of the best and the classes of the smallest, whilst, as its crowning glory, there should be a real drawing-room, where art should be enthroned, homage paid and worship rendered by the little children through picture-books, wall decorations, drawings, and such exercises with the pencil and the brush by the children themselves as would occur to the lady artist in charge of such a room. Alluding to the Science and Art Department, Mr. Sykes said that the department had taken the narrowest possible view of its responsibilities in the matter. It begun by translating the term, "artistic instruction" into "teaching drawing in elementary schools." It effectually sidetracked the whole question of artistic instruction into the *cul de sac* of teaching drawing, and there we were to-day. He was glad to observe that there were some teachers who had resolutely thrown to the winds the traditional methods of teaching drawing in elementary schools. They were making their schools as attractive as possible by simple yet effective interior wall decorations. They went to Nature for their inspiration, and by that means they were cultivating the faculties of accurate observation and good taste amongst the children, and as a valuable help they were receiving the support and encouragement of skilled experts working under the various educational authorities. It was in this direction only that true success would be achieved. The personality of the teacher and his rightly-directed enthusiasm must have free play, or we should never advance very far towards the artistic instruction of the children of the industrial classes. In concluding, Mr. Sykes insisted upon the importance of proper conditions for effective work being provided in the schools themselves. There should, he said, be an art-room in connexion with every elementary school of more than 100 children, which room should be kept exclusively for the purpose of instruction in art. There was much, too, needed in the direction of training teachers for the work. If the reforms he had suggested were desirable the Board of Education must set on foot a quiet revolution of method to secure them. On one necessary force to secure this revolution he believed the Board of Education might count unfailingly, and that was on the devotion and the whole-hearted enthusiasm of his fellow-teachers in primary schools. He pleaded for freedom for the primary school teacher, freedom to experiment, because educational science was still in its experimental stage, freedom even to make mistakes, freedom to use a big wastepaper basket which no prying assessing eyes should ever turn over; and the more freedom the State gave to the teacher the more value would the teacher yield in return to the State.

Mr. David Symons, President of the Scottish Art Teachers' Association, in an instructive paper, reviewed the Memorandum issued by the Scotch Education Department in August, 1907, on the teaching of drawing. The Memorandum, he said, was much more than a skilfully-edited and annotated *résumé* of what was being done by teachers of repute; it was full of fresh and inspiring suggestions; it contained many valuable direct hints on methods of teaching, and altogether it offered no mean contribution to the sum of contemporary thought on the subject. The ideal of the aims and possibilities of primary school drawing instruction which the Memorandum upheld was such that the subject was at once raised to its proper sphere. The fundamental principle permeating the Memorandum was that from the very beginning each drawing must be a record of personal research at the first source of information—the actual object itself. The Memorandum had much to say regarding methods of representation and the mediums to be employed in teaching. Free drawing to a large scale with chalk, charcoal, or coloured crayon was given an important place for the younger classes of the school. Following the consideration of mediums and methods of expression the choice of material for study was dealt with, and this, in the opinion of Mr. Symons, was one of the most valuable parts of the Memorandum. The hints given as to the necessity for preserving in the course of study a judicious balance between objects from nature and fashioned articles, for grading the subjects to the capacities of the various classes, and for arranging that they be taken up in some ordered sequence were by no means so superfluous as they ought to be. In concluding, Mr. Symons said he would like to pay a tribute to the deep sincerity of purpose which characterised the Memorandum throughout. Teachers approaching it for guidance, with an equal sincerity, would find it helpful, eminently practical, and, above all, inspiring.

In the discussion which followed the papers Professor Beresford Pite said he believed they would all agree on the exceeding value and importance of the various papers. Sir W. Richmond was somewhat pessimistic on the subject which they were discussing, and he (Professor Pite) must say that he felt the burden of the truth of Sir William's observations. They must look to people like Sir William Richmond to find a remedy for the disease which they all deplored. In dealing with the question it was important that they should recognise that there was a great distinction between the teaching of art and the teaching of drawing. They could teach drawing on many systems, but on how few could they teach art? He would urge that in the study of antiquity they should look for the thought and not the fault. Mr. Wyse had suggested in his paper that the study of painting might be more popular and interesting to young children than the study of architecture. He (the speaker) wholly differed from that. To teachers of the industrial classes he would say that plain geometry was of vital importance as free-hand drawing, and, above all, they should not draw small. Let children draw on the blackboard with chalk, full size.

Mr. Vinall remarked that clay-modelling had been very greatly neglected in schools after the kindergarten class. To teach art properly it was essential that every scholar from seven to fourteen should know how to make what the architect or designer would call working drawings, the medium being clay, which could afterwards be carried out in wood or other materials.

Mr. Rawson, commenting on Mr. Sykes's paper, said that that gentleman argued for greater freedom for teachers, but he did not give any definition of freedom. In his (the speaker's) opinion what was wanted was a greater amount of qualified instruction in the schools.

On the motion of Mr. A. Millar a resolution was carried in which the Congress expressed the opinion that more attention should be given to the training of the sense of colour, and that to this end colour museums were desirable. A further resolution recommended that all colleges should accept drawing as an optional subject for their entrance examinations and should recognise art work as counting towards the attainment of their degrees.

## PUBLIC WORKS IN NEW SOUTH WALES.

In the annual report by the Secretary for Public Works to the Government of New South Wales a complete account is given of various engineering and architectural works executed or advanced in the State during the year 1907. The total expenditure, amounting to nearly two millions, was distributed mainly on water supplies, rivers and drainage, roads, drawbridges, and ferries, railways and tramways, and State buildings.

*Water Supply, Drainage, and River Works.*—In April, 1907, the great Cataract dam was sufficiently advanced to permit its use for impounding water, and the whole scheme, including valve-house and parapets, was completed in December of the same year. The total cost was 329,136*l.*, which is small in comparison with the storage capacity of 21,411,500,000 gallons.

Considerable headway has been made in the Barren Jack Storage and Northern Murrumbidgee Irrigation scheme. This important project will supply about a million acres of land with water for cattle and fodder, and provide for the irrigation of 357,000 acres of high-class land. The structural works include a dam across the Murrumbidgee River, a movable diversion weir and regulator about 220 miles down-stream, a main canal 132 miles long, a main branch canal 35 miles long, and numerous subsidiary branch canals and distributing channels. The capacity of the reservoir will be more than 200,000,000,000 gallons of water, derived from a catchment area of 5,000 square miles, the total estimated cost being about 1½ millions.

Englishmen ought to be proud to think that these huge schemes have been undertaken single-handed by the New South Wales Government, whose commendable enterprise is emphasised by the fact that the second great reservoir will have a capacity practically equal to that of the Assuan Dam in Egypt.

Water supply works in nine other districts are described in the report, and it is interesting to note that in two cases reinforced concrete service reservoirs have been built. Works under the Water and Drainage and Artesian Wells Acts included the completion of bores and distributing works and the building of several new tanks. The artesian wells completed and in hand will supply water to 2,755,729 acres of more or less arid country.

Swamp drainage operations affecting 116,420 acres adjoining the Tweed, Richmond, Brunswick, and Clarence rivers and the north coast have steadily progressed, and extensive main drainage works have been continued in metropolitan and county towns.

The expenditure on rivers and harbours relates mainly to the maintenance and construction of breakwaters and training walls and to dredging work. Breakwaters and training walls were built during the year to the length of 3,344 ft., and 5,362,533 tons of sand, silt, and other obstructing materials were removed, at the average cost of 4·54d. per ton. River gauging has been systematically continued, with the object of obtaining data for the more complete utilisation of available water, and steps have been taken to commence the extirpation of the water hyacinth, which, as in some parts of America and Queensland, completely covers the surface of some rivers and lagoons in the north. It is stated that the origin of this pest in New South Wales is traceable to a hyacinth purchased in Brisbane as a pretty plant and thrown into the Swan River by a local resident when he tired of it. The State Government, in turn, are tired of the plant, but unfortunately cannot get rid of it in the same facile way.

*Roads, Bridges, and Ferries.*—In January, 1907, most of the works previously dealt with by the roads and bridges branch of the Public Works Department were transferred to shire and municipal councils, but the more important bridges and ferries were declared national works. Tenders for forty-eight new bridges were accepted during the year, and two or three important structures of the same class were thrown open to traffic.

*Railways and Tramways.*—Construction was

continued on four new railway lines, which will provide an additional mileage of some 315 miles when complete. The works included the construction of a steel bridge more than 500 ft. long, station buildings, grain sheds, cattle yards, water reservoirs, and pumping stations.

Work at the fine new Central Station, Sydney, was finally completed in August, 1906, so far as regards the first instalment of the design, the total expenditure being 693,364*l.* Authority was granted by Parliament for the construction of an important line 310 miles long, which will probably become the recognised passenger route to Brisbane, and open up large tracts of agricultural and timber-growing lands. Particulars are given in the Chief Engineer's report of several branch lines authorised and surveyed.

Ten new tramway lines and extensions were in progress, involving an estimated expenditure of 313,698*l.*, plans were submitted to Parliament for three further lines at the estimated cost of 124,809*l.*, and preliminary schemes were prepared for forty-eight further proposals.

*State Buildings.*—Mr. W. L. Vernon, the Government Architect, draws special attention in his report to several buildings in which work was done during the year. The proportions of the new Central Railway Station appear to be lost under the partial erection, but sufficient work has been done to indicate that Sydney will some day possess a station architecturally commensurate with its importance. The Royal Prince Alfred Hospital, now completed, is said to be worthy of ranking in every respect with the best hospitals in any part of the world. Judging by photographs given in the report, the Fisher Library, in Perpendicular style, should form, when completed, an imposing addition to the Sydney University. A striking interior feature is the hammer-beam open-timber roof of the library proper. Another building at the University is that of the Engineering School, so designed as to constitute a first step in gradually bringing a group of irregularly-built schools at the western angle into harmony with the general scheme of the main University buildings. New abattoirs, benevolent institutions, schools, light-houses, and other State buildings are also described by the Government Architect.

## ROMSEY ABBEY.

Canon Gore Browne, Chancellor of the Diocese, presided recently over a Consistory Court at Winchester to hear an application by the vicar and churchwardens of Romsey for a faculty to erect a porch at the north-west door of the abbey at a cost of about 750*l.* Objection to the faculty being granted was raised by Mrs. George and Miss Berthon, daughters of the late vicar, and other persons, who presented a petition signed by 533 persons against the proposal, which, however, had been approved by the parish vestry. The vicar stated that in earlier days it was clear there existed a very large porch, extending out into the churchyard. That had been taken down and many years later a wide pathway was constructed. When the pathway was being made the excavations revealed the foundations of the old porch, extending to a distance of 40 ft. out into the churchyard. There was no intention of attempting to restore, in the full sense of the word, the ancient porch. The vestry claimed that a porch was required first of all as a protection to the great doorway of the church. The dog-tooth work had nearly perished for the want of a porch. A great deal of valuable carving had been destroyed owing to the porch having been taken down in bygone years, and the rest would go in a few years if there was no protection provided. Secondly, the addition of a porch was necessary for the comfort of the worshippers, who suffered a great deal from the opening of the doors on the north and north-west. There was an entrance to the abbey at the south continually in use. Between the carriage-way and the door in question on the north side there was a pavement nearly 9 ft. wide. If that were covered opposite the door by a porch it would afford protection to people attending weddings and funerals. There was no suggestion of restoration or removal of old work; it was a frank statement that the porch was wanted as a protection at the principal doorway of the church, and it was not desired that they should in any sense try to reproduce the ancient work. Not a single ancient stone would be interfered with, but some of the valuable ones would be protected. The vestry and building committee had selected Mr. Caröe to devise the plans. The next question was to find a stone that would harmonise with the rest of the building, and they had chosen the same kind of stone that Wells Cathedral and Glastonbury Abbey were built of. They had already tried a bit over the door where the dog-tooth moulding had decayed, and it now so harmonised that it would not catch the eye. The vestry felt that they were not justified in treating the question as one of artistic or æsthetic interest. At Romsey it was not what they would call a beautiful ruin, but a church in daily use. It was a parish church, and their first object was to keep it as such and see that the former porch was replaced with a building upon which every care had been bestowed to keep it in harmony with the rest.

Mr. A. W. Pearce, solicitor, who appeared for the objectors, called Mrs. George as a witness, who contended that the porch would be injurious from an antiquarian point of view. She had received protests against the scheme. She produced a petition which had been signed against the scheme on the grounds (1) that the erection of a modern building would seriously damage the abbey from an antiquarian point of view; (2) that such a porch could not be a reproduction, as no authoritative drawing or plan was in existence; (3) that it was not desired; (4) that it would be a disfigurement and an eyesore to all who valued the ancient church; (5) that it would detract from the qualities of the ancient building; and (6) that the encroachment on the pathway would be a source of danger, etc.

Mr. Francis Baigent, of Winchester, said there was no evidence of any kind to show that a porch ever existed on the north side. A chapel once stood there and the licence for that building was still extant. If a porch ever existed it was probably pulled down on the building of the chapel in the time of William of Wykeham. A porch such as was suggested would spoil the appearance of the north side. It would hide at least two windows and give the building the appearance of patchwork. If the building was to be restored as it existed in ancient days, they ought to rebuild the chapel. He regarded the present proposal as a "mere fad." It would be a disfigurement and be out of character altogether. The abbey was the only ecclesiastical building belonging to a convent that had come down to their time. No other building had a higher claim to be left untouched. They could not in this country point to another nuns' church, and it should be left alone. The whole of the outlines were now perfect. Why stick out an unsightly projection for no purpose whatever?

Mr. C. F. Cooksey, of Southampton, gave similar evidence.

The Chancellor said he was bound to take every step he could to ascertain what was best to be done in the interests of architecture as well as of the parish. It would be a mistake to hurry such an important matter. He proposed to adjourn the inquiry till October 23, and in the meanwhile would consult the Bishop personally, as well as such experts as he might think desirable.

## PROPOSED NEW BUILDINGS IN LONDON AND SUBURBS.

Business premises and flats in Henrietta-street and Wimpole-street, W. Messrs. Wm. King & Son, builders, 3, Vauxhall Bridge-road, S.W.

Extension to 49, Duke-street, W., by Mr. Wm. Smith, hosier, etc., 396, Oxford-street, W.

Benedictine monastery and church at Dulwich. Mr. J. W. Cowper, architect, 35, Old Queen-street, S.W.

Lewisham.—Thirteen houses, Caterham-road, Messrs. H. & G. Taylor, builders, Boyne-road, Lewisham; two houses, St. Fillans-road, and four houses, Brownhill-road, Messrs. J. Ellis & Son; ten houses, Chalcroft-road, Messrs. W. J. Scudamore & Sons, builders, 13, Manor-lane, S.E.; twenty-two houses, Ewhurst-road, Mr. W. Allam; four houses, Inchmery-road, Mr. Jas. Watt, builder, Bromley-road, Catford, S.E.; shop, Perry-hill, Messrs. J. W. Falkner & Sons, builders, 24, Ossory-road, Old Kent-road, S.E.

Leyton.—Additional office accommodation (8,600*l.*), for District Council, Mr. Ralph Vincent, Clerk, Mr. W. Dawson, Surveyor; seven houses, Perth-road, and four houses, Clementina-road, Mr. J. Dunn; additions to factory, Church-road, Mr. A. W. Hudson, architect, 87, Finsbury-pavement, E.C.; two houses, Chesterfield-road, Mr. W. D. Redford; additions to caretakers' houses, Dornsell-road school and Cann Hall-road schools, Mr. W. Jacques; two shops, High-road, Mr. R. S. Dartnall; conversion into shop of Nos. 333, 335, and 337, Church-road, Mr. A. Budds; alterations to the Alma beerhouse, Church-road, Mr. W. G. Ingram, architect, 4, Verulam-buildings, Gray's-inn-road, W.C.; shop, Clementina-road, Mr. W. Newton; additions to 865, High-road, Leytonstone, Mr. C. J. Sherwood; temporary mission-hall, Lea Bridge-road, Mr. A. Archer; additions to grand stand at football ground, Granleigh-road, Mr. P. Cornish; surgery at rear of 485, Lea Bridge-road, Messrs. Croggan & Co.; additions to offices, Mr. W. Manders, builder, Leyton Green-road; shop, house, and stores, High-road, for Stratford Co-operative Society, 54, Mayland-street, E.

Tottenham.—Thirty-five houses, Keston-road, and fourteen houses, Ripon-road, Mr. T. Rowley, care of Messrs. Hodson & Whitehead, architects, 7, Finsbury-square, E.C.; alterations, etc., 15 and 17, Salisbury-road, Mr. J. C. Hill; iron laundry at rear of 1a, Woodlands Park-road, Mr. W. C. Buttery; six houses, Seymour-avenue, Mr. F. W. Calley, care of Mr. H. S. Couchman, architect, 520, High-road, Tottenham; factory in Fountayne-road, for Messrs. J. H. Clark & Co., piano frame makers, Broad-lane Ironworks, Tottenham; washhouse at gum factory, Mr. C. Day; two houses, Westbury-avenue, Mr. G. Farnborough; additions, etc., to 355 and 357, West Green-road, Messrs. Hillyer & Hillyer, estate managers, West Green, Tottenham; additions to workshop, Derby-road, for the Atlas Metal and Alloys Company, Ltd., 52, Queen Victoria-street, E.C.; twelve houses, Ascot-road, and seven houses, North-grove, Mr. G. W. Rowley, builder, 278, Philip-lane, N.; dancing-hall at rear of 14, Bruce-grove, for the Union Club, Ltd.; extension of Tottenham and Edmonton Gas Company's offices, 639, High-road, Tottenham; buildings for London and South-Western Bank at Great Eastern Railway Bridge, Seven Sisters-road, Messrs. Muskett & Co., surveyors, 491, High-road, Tottenham.

Addition to Whitefield's Tabernacle, Tottenham Court-road, W.C. Mr. W. Downs, builder, Hampton-street, Walworth.

Rebuilding 13 and 14, Castle-street, W. Messrs. H. Kingerlee & Sons, builders, Shepherd's Bush and Oxford.

Ruislip—Northwood.—Two houses, King Edward-road, Ruislip, Messrs. Dodd Brothers; three houses, Frithwood-avenue, Mr. J. Fry.

Pinner.—House, Paine's-lane, Messrs. Turner & Day; development, West End Estate, Mr. A. W. Marshall.

Wembley.—Six houses, Wembley Park-drive, Messrs. R. Ady & Co.; house, Llanover-road, Mr. Henry Barker; two houses, Peel-road, Mr. A. H. Stringer; four houses, Dagmar-avenue, Mr. W. Poulter, builder, 49, St. John's-road, Wembley; seven houses, Priory-avenue, Mr. Pauncefort; five shops, Ealing-road, Mr. William Batten.

Wealdstone.—Twenty-two houses, Byron-road, Mr. T. Martin; four houses, Radnor-road, Messrs. F. & W. Bettesworth, 9, Strode-road, Willesden Green, N.W.; three houses, Cunningham Park, Mr. D. Jones.

Friern Barnet.—Development of Bethuen Estate, Messrs. Bennett & Strutton, architects, Broadway, Finchley; detached house, Mydd-leton Park, Mr. H. W. Say.

Barnes.—Twenty-one villas, Manor-grove, Fitzgerald Estate, and two pairs semi-detached villas, Chestnut-avenue, Mortlake, Mr. R. B. Rowell, architect, Triangle Corner, East Sheen, S.W.; twenty-four houses, Lonsdale-road, Mr. L. C. Clayton; three houses, Ellison-road, Mr. G. Smith; three houses, Glendover-gardens, Mortlake, Messrs. C. Ellis & Co., builders, East Sheen; alterations, Working Men's Institute, Cleveland-road, Messrs. Bartlett & Ross, architects, 8, Bream's-buildings, W.C.

# Competitions.

Hinckley Workhouse.—In a recently-decided competition amongst architects practising or being ratepayers in the Urban and Rural Districts of Hinckley for a new infirmary, laundry block, and other alterations to the Union Workhouse at Hinckley, the plans sent in by Mr. W. T. Grewcock, A.R.I.B.A., of Leicester and Hinckley, at an estimated cost of 6,217*l.*, were selected, and those of Mr. W. T. Orton, of Birmingham, and Mr. F. E. Preston, of Rushden, were placed second and third, the two last receiving premiums of 5 guineas and 2½ guineas respectively. Six sets of plans in all were submitted.

Dudley Workhouse Extension. — The assessor in this competition, Mr. C. E. Bateman, of Birmingham, has placed first design No. 25, and has recommended that the author be appointed architect of the work. The assessor specially mentions designs Nos. 22, 23, 28, 26, and 31. Messrs. Nicol & Nicol, of King's Court, 117, Colmore-row, Birmingham, are the authors of design No. 25.

Convalescent Home, Worthing.—The design of Mr. E. L. Lunn, of Guildford, has been accepted for the convalescent home at Worthing in connexion with the Royal Surrey County Hospital. Mr. G. Prentiss Shepherd, of Keymer, Sussex, has given 10,000*l.* for the building and endowment, and the cost of the site, 650*l.*, is being met by subscription.

# Correspondence.

## ILFORD EMERGENCY HOSPITAL COMPETITION.

SIR,—I feel prompted by the rightly indignant letter of D. H. H. to state that I also received my drawings in a decidedly damaged condition.

I agree, it does seem inconsiderate that more care should not have been exercised with designs that involve so much time, labour, and expense. G. P. P.

SIR,—I read with interest your correspondent's letter with reference to this competition, and agree with all the remarks D. H. H. has to make on the subject. I also was a competitor, and had to pay carriage for the return of a damaged set of drawings.

As far as my experience goes it is not the usual practice for competitors to pay return carriage on drawings, but if this sort of thing is taken "lying down" it will rapidly become so.

I notice in your issue of the 15th inst. a competition for a comparatively small school is advertised, for which a deposit of 5*l.* 5*s.* is demanded, "5*l.* of which will be returned on receipt of a *bonâ-fide* design."

This is the thin end of the wedge, and before very long we shall have to pay handsomely to be "allowed" to compete.

Things are in a parlous state, and unless a strong stand is taken they will rapidly become worse. "COMP."

*Newcastle-upon-Tyne.*

## THE PATENT AND DESIGNS ACT AND THE EFFECT ON PROPERTY.

SIR,—Adverting to Messrs. Leopold Farmer & Sons' Letter, it should be borne in mind, when appraising the value to the country of foreign firms purchasing land and factories, that, being the holders of monopolies, these firms are in a position to charge the users of their products with the extra cost they thereby incur. Hence the benefits referred to apply not so much to the country as a whole as to land and factory owners. J. A. GLAZIER.

## DATES ON BUILDINGS.

SIR,—Perhaps you will allow me to ask why architects and designers of public buildings do not conform to the correct style of recording dates in the XIXth century upon tablets which are intended to endure for centuries? My remarks are induced by your copy of the St. Ann's Church, Manchester, inscription, printed on p. 161, wherein the date is given as MDCCCCVIII.! Surely after seven years of this century we should be familiar with the correct mode of lettering. Just as we write CXC. for 190, being ten before 200, so we should write MCM. for 1900, being 100 before 2,000. W. H. JONES.

## BOOKS RECEIVED.

THE HOME BEAUTIFUL. By Arthur S. Jennings. (London: Greening & Co., Ltd., St. Martin's-lane, W.C. 6d. net.)

HOUSE PAINTING, GLAZING, PAPER HANGING, AND WHITEWASHING. By A. H. Sabin. (New York: J. Wiley & Sons. London: Chapman & Hall, Ltd. 4*s.* 6*d.* net.)

# General Building News.

THE RESTORATION OF YORK MINSTER.—With the complete removal of all external evidences of restoration at York Minster, a further report on the work has been issued to the subscribers by the Dean, the Very Rev. Dr. Purey-Cust. In this document the Dean remarks that there is a unanimous verdict in favour of the flying buttresses to the nave, which were for a time a considerable occasion for dispute. The restoration of the "Five Sisters' Window" has been completed. The restoration of the parapet of the central tower has also been completed, 70 tons of stone being used, and at some future time the Dean hopes to be able to carry on the work of restoration up each of the four sides, and to restore the ornamentation, which has generally, and in some instances entirely, crumbled away. He thinks there is no reason for believing that pinnacles ever adorned the four corners of the tower, though it seems as if preparations had been made for them. An important and pressing matter, in which a commencement has already been made, is the condition of the mullions of the windows throughout the building. As regards the provision of a suitable pulpit for the nave—a need which has been long manifest—the report states that the late Mr. Bodley supplied a design, but little progress has been made hitherto in providing the cost. His successor, Mr. Hare, has all the detailed drawings in his possession. The total estimate is 600*l.* The restoration of the tomb of Archbishop Bowet has not yet been begun. Another large and important work also is before the Dean and Chapter in the necessary repairs, etc., required by the Minster bells. Mr. Taylor, of Loughborough, has been consulted, and he suggests a new frame, as he is convinced there will always be trouble with the swinging of the bells if it is attempted to rehang them in the existing frame, which is light and weak, and badly designed for such a heavy peal of bells. The estimate for this work amounts to 896*l.* The annual income arising from the bequest of the late Misses Duncombe will, together with the ordinary receipts from the fabric fund, be sufficient to execute the repairs to the mullions of the windows and similar constructional requirements, but it will not be enough for any of the special subjects mentioned, for the carrying out of which an appeal for funds is made.

ROMAN CATHOLIC CHURCH, ABERLOUR, N.B.—A Roman Catholic church, dedicated to the Sacred Heart, is being erected in Aberlour at a cost of about 1,100*l.* The architect is Mr. A. M'Pherson, of Edinburgh, and the successful contractors are:—Mason, Mr. James Lawrence, Craigellachie; carpenters, Messrs. Dunbar, Craigellachie; plasterer, Mr. Brodie, Elgin; plumbers, Messrs. Fyfe & Son, Aberlour; slater, Mr. John Durnin, Aberdeen.

PRIMITIVE METHODIST CHURCH, ELLESMERE.—A new church has been opened by the Primitive Methodists of this district at a cost of some 1,500*l.* The church is capable of accommodating 300, while the adjoining schoolroom will seat 250. A minister's vestry and a classroom have also been provided, together with a heating chamber below. The plans were selected in a competition, the successful architects being Messrs. Shayler & Ridge.

SEMPERINGHAM ABBEY CHURCH, LINCOLNSHIRE.—The abbey church dedicated to St. Andrew has been repaired after the damage it sustained in a storm in February, when lightning struck some pinnacles which, in their fall, injured the roof and the interior. The church, near Falkingham, in the district of Kesteven, was built, for the greater part, in the Norman period, and has a plain later tower with decorated pinnacles. Gilbert de Sempringham, rector, and founder of the Gilbertines, the only English monastic order, built a priory there, in or about 1140, dedicated to the Virgin for canons and nuns, which at the Dissolution was valued at 359*l.* 19*s.* per annum. The priory formed the superior house of the order, who held their general chapters there. The site, distinguished latterly by a moat, is a little to the north of the church.

BAPTIST CHURCH, PENDLETON.—The Baptists of this town propose to erect a new church in Nursery-street, at a cost of 4,000*l.* Accommodation will be provided for 450 people. A feature of the building will be a couple of robing-rooms behind the chancel, which can be thrown open into one for use as a lecture-hall. Messrs. Cook & Son, Manchester, have prepared the plans.

WESLEYAN CHURCH, TORQUAY. — A new Wesleyan church has been opened at Chelston, Torquay. The church is situated in Old Mill-road, and is of red local sandstone, with white Beer stone dressings. Seating accommodation is provided for 400, the woodwork being red pine throughout, with the exception of the rostrum and seat ends, which are of pitch-pine. The architects of the building are Messrs. Rowell, Sons, & Locke, Newton Abbot. The total cost of the church and furnishing will not, it is estimated, fall far short of 2,000*l.*

TWO NORFOLK CHURCHES.—Messrs. Lacey & Upcher, of Norwich, have been appointed architects for reparation work at the churches of South Repps and Burnham Ulph. The church of St. James, South Repps, is mainly in the Decorated style, and has a handsome embattled tower. The new work consists of the reparation and strengthening of the tower, the reroofing of the nave, restoration of the porch, etc., at a cost of about 800*l.* The nave roof of All Saints' Church, Burnham Ulph, which was built as a chapel to St. Mary's, Burnham Westgate, near the north coast, will be restored.

NEW MANCHESTER CHURCHES.—A new church, dedicated to St. Paul, at Bradford, Manchester, was recently consecrated by the Bishop of Burnley. It is the first of a series that is to be built in Manchester, each to hold 500 people. The architect is Mr. E. H. Lingen Barker, of Manchester.

GIRLS' GRAMMAR SCHOOL, HERTFORD.—A grammar school for girls has been built on Windmill-hill, Hertford. The building has been erected from the designs of Mr. Burgess, architect.

COUNCIL SCHOOLS, HIGHFIELD.—The new Council schools erected at Highfield, near Rowlands Gill, have been opened. The schools, which have been erected at a cost of about 6,000*l.*, provide accommodation for 350 scholars in the mixed department, and 180 infants, while there is also a cookery department. The buildings are faced with Pelaw red facing bricks, with stone dressings, the roofs being Westmorland green slate. Messrs. A. & R. Davis, of Burnopfield, were the contractors, and the designs were prepared by Messrs. Liddle & Browne, architects, Newcastle.

HIGH SCHOOL, RENFREW.—Glebe-street High School, erected by the Renfrew Burgh School Board for secondary education, has just been opened. The school, which was designed by Mr. John Arthur, Glasgow, is estimated to cost 10,000*l.* The main block, two stories in height, has a frontage to Glebe-street, flanked on right and left by the manual training and cookery and laundry blocks respectively. There is classroom accommodation provided for 780 scholars, exclusive of music-room, chemical and physical laboratory, preparation, balance, and dark rooms, drawing-room, and manual training and cookery and laundry blocks, provision for which has also been made, also the requisite lavatory accommodation, and boys' and girls' playsheds. The school is heated by the low-pressure hot-water system. The measurers were Messrs. Shearer & Marr.

BOARD SCHOOL, GREENOCK.—The opening has just taken place of the Cartsburn Public School, which has been built by Greenock School Board at a cost of 13,000*l.* The building has twenty classrooms, with accommodation for 1,020 scholars. Special rooms are provided on the lower ground floor for cooking and laundry work, while two rooms and kitchen, completely furnished, have been set apart for teaching the girls housekeeping. A workshop with twenty benches for manual instruction for boys has been fitted up. There are three floors, the scholars on each flat gaining their respective classrooms by a stair provided exclusively for them. The building is heated by hot-water pipes and radiators on the low-pressure system, and the school is lighted throughout by electricity. The architects were Messrs. Salmon & Son & Gillespie, of Glasgow.

PARISH HALL, TREHARRIS.—A new parish hall has been erected at Treharris in connexion with St. Matthew's Church. The hall itself will hold 205 persons, and the institute underneath a similar number. The cost was about 1,440*l.* Mr. W. Dowdeswell prepared the plans and superintended the work of erection.

WESLEYAN CHAPEL, KELLY BRAY.—A new Wesleyan chapel has been opened at Kelly Bray. It is built of local stone, rough coated, with cement dressings, and affords seating accommodation for 150 persons. Including the site, the cost will be about 1,100*l.* The building was designed by Mr. L. Scantlebury, architect, Callington.

CHESTERFIELD HOSPITAL EXTENSION.—A new home has been opened for the nurses and house staff of the Chesterfield and North Derbyshire Hospital. This home is part of an extension scheme which is to cost 16,000*l.*, and the removal of the nurses to their new home will result in an addition of forty surgical beds, making the total of medical and surgical beds in the institution 120. The new building, which has cost about 10,000*l.*, has accommodation for fifty-five nurses. Mr. W. Cecil Jackson, architect, of Chesterfield, prepared the designs and superintended the work, which has been carried out by Messrs. Maule & Co., of Nottingham. The following is a list of the subcontractors:—Heating, Mr. W. Haslam, Hanstoft; plumbing work, Messrs. Eyre & Sons, Chesterfield; joinery work (throughout), Mr. T. Taylor, Eckington; stonework, Mr. John Wright, Chesterfield; ironwork, Messrs. T. W. Ward & Co., Sheffield; glazed bricks, Messrs. Allen & Son, Halifax; mosaic work, Messrs. Hodkin & Jones, Sheffield; ironmongery, Mr. W. D. Bales, Chesterfield; iron railings, Mr. W. Turner, Chesterfield; stone carving, Mr. F. Turner, Chesterfield; painting, Mr. Bee, Nottingham; the contract for the furnishing was secured by Messrs. White & Sons, of Chesterfield, certain additional items being supplied by Messrs. Eyre & Sons; electric light and fittings, Messrs. Alvey & Bower, Chesterfield; fire appliances, the Chesterfield Gas and Water Board. The electrical installation has been put in under the supervision of Mr. R. L. Acland, the Borough Electrical Engineer.

SANATORIUM, ALLT-Y-MYNYDD. — The main block of the sanatorium at Allt-y-Mynydd has been completed. The building was erected by Mr. Rees Davies, Carmarthen, from designs prepared by Mr. E. V. Collier, architect, Carmarthen. Inclusive of furnishing the work has cost between 8,000*l.* and 9,000*l.*

WORKMEN'S CLUB, KINGSTON.—New premises are being erected for the Kingston Workmen's

Club in London-road. The contract price for the main building is 1,600*l*., and for the extension of games' and billiard room 120*l*. The builder is Mr. F. Hawkey, of Surbiton, and the plans have been prepared by Mr. G. Smith, of Kingston.

PAVILION, RHYL.—The new pavilion at Rhyl was opened on the 30th ult. The building has a main frontage of 112 ft., and a depth of 119 ft., and has cost about 9,000*l*. It forms part of a scheme for the improvement of the Rhyl front. The centre portion of the ground floor area is taken up by the hall, 90 ft. wide and 60 ft. from front to back. On the first floor in the centre of the pavilion is a large gallery capable of seating 500 persons, and a refreshment-room opening on to a balcony at the front. The roof round the centre octagonal dome, which rises to a height of 70 ft., and is 60 ft. in diameter, and which is of ferro-concrete, has been formed as a roof-garden. An important feature is the ferro-concrete work. The whole of the gallery, columns, and domes, also the flat roof gardens, have been executed in ferro-concrete on the patented indented-bar system. The pavilion will hold 2,000 persons. The work has been carried out from the designs of and under the superintendence of the joint architects, Messrs. Maxwell & Tuke and Mr. F. Bennett Smith, of Manchester, whose designs were selected in a limited competition of six architects. The chief contractor was Mr. C. Griffiths, of Lye, Stourbridge.

IMPROVEMENTS AT SNOW HILL STATION, BIRMINGHAM.—The work of making a new entrance for foot passengers to Snow Hill Station, Birmingham, is practically completed, and will clear the way for the big scheme of enlargement of the station about to be taken in hand. The new entrance runs through the ground floor of the Great Western Hotel, and when the further portion of the work has been completed it will lead on to the platform projected. Various apartments touched by the alteration scheme have been enlarged and redecorated, and the corridors and entrance-hall newly laid with mosaic. The work has been carried out by Messrs. Henry Lovatt, Ltd., of Wolverhampton and London; the engineer is Mr. W. W. Grierson, Head Engineer to the Great Western Railway Company; and the foreman Mr. T. Morgan.

PROPOSED OFFICES, SOUTHAMPTON.—It is proposed to erect at Woolston, Southampton, a suite of offices for the Australian Emigrant Department at a cost of 5,000*l*. Mr. Guy Prendergest, of Sholing, Southampton, is the architect entrusted with the work. The fronts are to be faced with Portland stone, with red Mansfield relief, and the plinth is to be of green marble or granite.

PROPOSED NEW INFIRMARY, PERTH.—Mr. John James Burnett, architect, of Glasgow, has submitted a report, with plans, to the directors of the Perth Royal Infirmary on the proposal to erect new premises. The plans provide for 100 beds, and the cost of the erection is estimated at 50,000*l*., or 500*l*. per bed.

BANK ADDITIONS, ILMINSTER.—The Wilts and Dorset Bank, at Ilminster, has been considerably enlarged by the addition of a new wing under the supervision of Mr. Filley, architect, of London. The facings are of Ham Hill stone from the quarries of the Ham Hill and Doulting Stone Company, Ltd., to match the old. The builder was Mr. A. Poole, of Ilminster.

## Sanitary and Engineering News.

WATER SUPPLY, GOSFORTH.—Work has just been begun on a new water scheme for the southern district of the Whitehaven Rural District Council. The site of the principal reservoir is at Scalefields, near Guards End, nearly two miles from Gosforth-square, on the Wasdale side, and situated at an altitude of 500 ft. above sea level. The cost of the scheme is estimated to be 14,100*l*. The length of the mains is about 24½ miles of 5-in., 4-in., and 3-in. cast-iron pipes. There are in all seven reservoirs, with a total storage capacity of 144,000 gallons. There are about 3,700 yds. of collecting pipes, with intake tank and settling wells at Gosforth. Mr. Harry W. Taylor, A.M.Inst.C.E., F.S.I., of Newcastle-upon-Tyne, and Mr George Boyd, Surveyor to the Whitehaven Rural District Council, are the engineers of the scheme.

DRAINAGE WORK IN POPLAR.—In his annual report, which has just been issued, the Medical Officer of Health for Poplar, Dr. F. W. Alexander, intimates that in five cases last year where water-closet pans and traps were fixed without notice being given under clause 14 of the London County Council by-laws, sect. 39 (1) of the Public Health (London) Act, 1891, the builders were written to asking them to open the ground, or otherwise legal proceedings would be instituted against them for infringing the by-law. This mode of procedure, says the Medical Officer, prevents good work being constructed on to defective work. Whenever drainage work has been found to have been done and covered up without inspection, if the builder will not open the ground, the work is exposed by the sanitary authority, and such a line of action ensures sound work. Four years ago the journals of the sanitary inspectors were examined from the date of coming into operation of the Public Health (London) Act, 1891, and lists were compiled of houses not inspected, and also those inspected with the number of inspections made. Lists of houses not inspected were given to the inspectors with instructions to inspect such premises as soon as possible. The inspection of these premises has now been completed, having taken a long time, as many defective drainage systems have been discovered, which had to be rectified before further inspections were made and fresh drainage work created.

## Stained Glass & Decoration.

KIRBY MOORSIDE, YORKS. — Stained-glass windows, executed by Messrs. Mayer, have been set up in the parish church. The two windows in the south side of the chancel represent St. Hilda and St. Chad, the east window illustrates the text, "Come unto Me, all ye that labour."

## Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Messrs. Bateman & Bateman, architects, have removed to No. 18, Bennetts-hill, Birmingham.

TABLES OF COPPER TUBES.—A recently-issued handbook, compiled by Mr. Isaac O'Toole, of Dublin, contains numerous tables showing at a glance the price and weight per foot of seamless copper tubes, from ⅛ in. to 4 in. internal and external diameter. The tables give for each diameter the thickness and weight per foot corresponding to standard gauges 20 to 5, and the price per foot for each diameter and thickness on the cost basis of from 9d. to 1s. 7d. per pound. Each table includes an additional column entitled "Extras on Basis in Pence per Pound." The compiler has omitted to explain, for the benefit of the uninitiated, the purport of this column, which refers to the extra price per pound charged for tubes of the thinner gauges. The book is clearly printed and neatly bound in cloth. It should be found handy for users of copper pipes, who can obtain copies from Mr. O'Toole, 22, York-road, Rathmines, Dublin.

HOUSING IN HERTFORDSHIRE.—The annual report of the Medical Officer of Health for Hertfordshire, Dr. F. E. Fremantle, which has just been issued, gives detailed information relative to housing in the county. He mentions that only a few of the rural district councils appear to have so far adopted by-laws in respect to new buildings, and expresses the hope that the remaining councils will consider, with a view to their adoption, the model by-laws for buildings in rural districts issued in 1904 by the Local Government Board. Giving information of building matters in the various districts of the county, the Medical Officer says that forty-six new houses have been built in the urban district of Bishop's Stortford, where the District Council is insisting on flushing-cisterns for indoor water-closets. About sixty new houses have been erected during the year in the East Barnet valley, chiefly in the direction of New Southgate. The Hertford scheme for pulling down old cottages and providing a suitable cattle market has fallen through. New cottages have been built and quickly occupied. In regard to the urban district of Hitchin, suggestions are made for improving slum areas by enlisting the co-operation of property owners, registering their names, and eventually throwing on them responsibility for insanitary conditions. Many houses have been repaired, and premises and yards improved by paving. At Royston cottages at low rental for the poorer artisans are reported to be too few, frequently causing overcrowding; but at Sawbridgeworth there is good provision of houses for the working classes, all occupied. A large number of houses have been built during the last year at Watford, rather of a better class than the previous twelve months. It is hoped that at Hoddesdon the District Council will insist on the provision of flushing-cisterns for water-closets in old houses. In the rural district of Buntingford there is lack of suitable cottage accommodation, many being in bad condition, and no new ones are being built to replace the old. There are no building by-laws to serve as an excuse for not building, and landlords are urged to build on their estates. Although nine new houses have been built at Hadham, generally the same remarks apply to this district as to Buntingford. Four new houses have been built at Ashwell, where new buildings are not supervised, but certificates under the Public Health (Water) Act, 1878, are obligatory. The state of development of the Garden City of Letchworth up to June 1 was as follows:—Houses built and building, 958; factories, 13; workshops, 11; shops, 45; licensed hotels, 2; unlicensed hotels, 3; places of worship and public buildings, 9; population, about 5,500; new roads made, 8 miles; sewers constructed, 11 miles; gas mains laid, 12 miles; water mains, 17 miles. The Medical Officer expresses the opinion that the Garden City Company and Parish Council will be well advised to build the nucleus of an isolation hospital, a public slaughter-house, and a market before vested interests have secured an impregnable position. At St. Albans the new by-laws as to new streets and buildings are felt to be too stringent for strictly rural areas; the matter is under consideration.

TIMBER TRADE OF FINLAND.—Reporting on the trade of Finland during the past year, Mr. Consul C. J. Cooke states that with regard to the timber trade the prospects during the autumn of 1906 were very favourable, but in the spring it became apparent that buyers were less active, and a certain unsteadiness in prices became perceptible. During the summer the large stocks which were unsold began to influence the market, and in the autumn of 1907 and later caused a considerable reduction in prices. According to the edict of January 25, 1905, the export duty on round and hewn timber was fixed at 45 penni per cubic metre for sleepers, lathwood, pitprops, pulpwood, telegraph posts, etc., of pine and fir, as well as for timber of smaller dimensions than 2 metres, except firewood. This duty would, according to the edict of December 28, 1907, be raised to 75 penni per cubic metre from January 1, 1909. The export duty on props had given an increased yield since 1904, when it amounted to 17,600*l*. In 1905 this tax produced 17,800*l*.; in 1906, 19,080*l*. In 1907, however, the total was 17,338*l*. only. The total export of sawn wood during 1907 compared with that of the preceding year showed a decrease of 67,072 standards, equal to about 10·9 per cent. At a recent meeting of Finnish timber merchants the position of the timber trade was discussed, and it was decided that a limitation of output would probably be necessary. The Bill of the Finnish Diet concerning the limitation of the right of timber firms to purchase land was also discussed, and was considered to be very unjust. The statistics of eighty-one saw-mills, representing about two-thirds of the whole wood export, show that at these mills there were sawn, during 1907, 374,372 standards, against 388,663 during 1906; that during 1907 349,515 standards were exported against 388,710 in 1906; that 17,042,700 trees were cut down during the winter, 1906-07, against 15,804,401 during the preceding winter. The production during 1907 shows a decrease of 14,291 standards against 1906. The statistics showed that the average consumption of logs per standard had been about forty-one pieces. Several million fewer trees were felled during the winter, 1907-08, than during 1906-07. The decrease in sawn timber resulting herefrom would be apparent in the spring of 1909.

ACCIDENTS ON BUILDINGS.—It is impossible to exaggerate the importance from a technical point of view of publishing accounts of accidents on buildings, together with the explanation of the causes which led up to them. Too often a kind of shame and false pride tend to hide the facts, and when these have, after some months, been ascertained by means of the slow course of a judicial inquiry, the sight of the finished building serves only to blot out the memory of the unfortunate incident. Two cases in France and Germany deserve to be recorded. The first refers to a mill in Marquette, near Lille, and cost the lives of thirteen workmen, without counting numerous cases of injuries both serious and slight. The building had seven stories, and the damage done by collapsing amounted to 50,000 francs for the structure, and 70,000 francs for the machinery. It appears that the principal reason for the accident was the usual haste which prevails in the erection of certain industrial buildings, when no time is allowed for the ferro-concrete to set. The capitalist in this case made rapidity of construction his chief condition, and to the usual clause in the contract claiming a certain indemnity for every day's delay in the completion of the building he added another clause, offering a bonus for every day the work was completed before the date specified in the contract. The building collapsed while the centring was being removed

from the last floor on the top story; that is to say, all the floors crashed down, but the supporting walls remained almost intact. Hence the connexion between floors and walls, which should have made a compact mass, must have been of the slightest. Very few details were forthcoming, owing to the unfortunate reserve maintained by the French bureaucracy. It was only owing to the fact that a bonus of 1,500 francs had been promised to the workmen that these latter protested publicly against the accusation of bad work and asserted they had explicit orders not to give the floor beams more than 20 centimetres bearing on the 45 centimetre walls, and were told to remove the centres before the specified time.——The other accident occurred on the new Custom House, Hanover, in which building the floors were constructed of hollow brick covered by a skin of reinforced concrete. The third floor was the first to collapse, and measured 7 metres by 4·50 metres. On one side it was carried by a wall, on the other by iron beams, with a bearing of 6 centimetres only. It had been built about a month; it was 15 centimetres thick with an upper skin of 3 centimetres, the reinforcing metal consisting of rods 19 millimetres in diameter, 30 centimetres apart. The lower floors had had a longer time in which to set; the reinforced layer was 6 centimetres thick, and the rods were 22 millimetres diameter, 30 centimetres apart. The accident was due, as usual, to a variety of causes—to the project, the execution, and the atmospheric conditions. This type of floor requires even more care in its construction than the ferro-concrete pure and simple, for it is a question of combining into a solid mass heterogeneous materials which have already set, and not only is the difficulty increased of thoroughly casing the rods in concrete, but the brick is liable to absorb some of the water intended for the cement. However, even if the execution were beyond reproach, the totally inadequate bearing of 6 centimetres is open to criticism. Added to this, the floor was constructed towards the end of November, and was at once exposed to frost, which arrested the process of setting. The collapse took place as soon as the props were removed, over a ton of lime being heaped on the floor at the time. The floor below stood the shock for a few minutes and then it, too, gave way, as did the lower floors in succession, burying three persons, one of whom was killed. The fact is all the more surprising that Germany has legislated in the severest manner for building construction. The vital question is, and will ever be, this: No official regulations will protect the employers unless they have full confidence in the contractor they employ. Until the public understands that the criterion to judge by is not the lowness of the tender, building accidents will continue to afflict our towns and damage the reputation of sound systems of construction.

THE "JERRY BUILDER" IN UXBRIDGE.—Mr. J. Freebairn Stow, Surveyor to Uxbridge Rural District Council, in his annual report, just issued, draws attention to a remarkable decrease in the number of buildings erected during 1907, and proceeds as follows:—"The general depression of the building trade all over the country, of course, in a measure accounts for the serious slump which has taken place in this district, but owing to the fact that the by-laws relating to new buildings and streets have been firmly and impartially enforced by your Council, the 'jerry builder,' who thrived a few years ago, is now practically extinct so far as the area under your jurisdiction is concerned, and to this fact I attribute, to some considerable extent, the decrease in the number of new buildings erected. The purely local builders give little or no trouble, and their work will compare favourably with any other district of similar character."

PORTLAND CEMENT FOR FINLAND.—Although the import of Portland cement into Finland last year amounted to 61,900 metric tons, against 43,712 metric tons in the previous year, Mr. Consul Cooke states that the United Kingdom is unfortunately not represented in this greatly increasing trade; 39,655 metric tons came from Germany, 8,525 from Sweden, 6,735 from Belgium, 5,184 from Denmark, and the rest from Russia, the Netherlands, and Norway.

ARTISANS' DWELLINGS AND HEALTH.—The Medical Officer of Health for Shoreditch, Dr. L. T. Fraser Bryett, in his annual report, describes as generally satisfactory during last year the sanitary condition of the Borough's artisans' dwellings, comprising some forty-six separate blocks (1,897 tenements and 4,829 rooms) inhabited by 7,790 persons. Taking the artisans' dwellings as a whole, during the twelve months, the mortality from all causes was markedly lower than that of the borough. The death rate in those dwellings occupied by persons in comfortable or fairly comfortable circumstances was very low. That of the class of dwellings occupied by people in very poor circumstances was distinctly higher than that of the borough. Taking the dwellings as a whole the infantile mortality was markedly lower than that of the borough, but whilst in the first-mentioned class it only amounted to ninety-nine per 1,000 births, in the class including people in very poor circumstances it was 207. The incidence of attacks of notifiable infectious disease was somewhat below the average for the borough.

CHANGES IN PICCADILLY.—The premises of the newly-established Imperial Colonial Club were informally opened on August 14 in No. 84, Piccadilly, at the corner, east, of Clarges-street. The house, lately occupied by the Imperial Service Club, was erected, with a return frontage to Clarges-street, nine years ago, after plans and designs by Mr. George Sherrin. Messrs. Mewes & Davies have been appointed architects for the alteration of the front, to include the addition of bay windows, of Nos. 125-6-7, for the Cavalry Club. Mr. William Willett has prepared plans for the building of an additional story to No. 8, Albany-courtyard, which was erected, together with "A," Albany (firstly named Piccadilly House), on the sites of houses of the Earls of Sunderland in the reigns of Charles II.—George I.; Sir Thomas Clarges, *temp.* Charles II.; and Lady Stanhope. The gardens of the houses extended northwards, between Sackville-street and Burlington House, to the then Vigo-lane. On January 4, 1902, we published an illustration, from a large water-colour in the Soane Museum, of the screen and gates of Albany-courtyard designed by Sir William Chambers, who built Piccadilly House for Stephen Fox, second Lord Holland. In 1770 Fox sold the house to Lord Melbourne, who exchanged it to the Duke of York and Albany for Dover House, Whitehall. In 1804 Henry Holland converted York House into chambers, now known as "A," Albany, and built the two rows of chambers and porters' lodges on the garden ground to the north—see the plan of 1792 in the *Builder* of May 9, 1903.

CHIMNEY THROWING, ALDERSHOT. — On August 12 Mr. W. Larkins successfully "threw" two chimney-stacks, 170 ft. and 85 ft. high, at Messrs. Alderton & Sumpsters's brick-works. Discarding the old method of burning out wooden props Mr. Larkins knocked away the bricks from the sides of the shafts until they fell over—a speedy and economical operation, which, however, is attended with some risk, as the workmen have but little time to ensure their own safety.

IMPERIAL COLLEGE OF SCIENCE, SOUTH KENSINGTON.—At the recent meeting, under the presidency of Lord Crewe, Chairman of the governing body, was read a letter from the Royal Commissioners of the Exhibition of 1851, stating that they had allocated all the remaining ground of their estate at South Kensington for purposes of the Imperial College of Science and Technology. The Governors resolved to proceed for the present with buildings for the mining and metallurgy departments of the Royal School of Mines, and to invite Sir Aston Webb, R.A., to prepare plans and designs for those and such other buildings as they may decide to erect hereafter.

ST. THOMAS'S CHURCH, PORTMAN-SQUARE, W.—At a sitting of the Consistory Court in St. Paul's on August 10, Dr. Tristram, K.C., Chancellor of the Diocese, decreed the issue of a faculty, upon the petition of the vicar, for the erection of a side chapel in the north aisle, to be fitted with a communion-table, and for an alteration of the seating under the gallery. The population of the parish is about 8,000, and the church provides room for 1,050 persons. St. Thomas's was built on the east side of Orchard-street in 1857-8, after designs, in the Early Pointed style, by Hardwick; the chancel was added twelve years subsequently.

HYGIENIC PAVING IN KENSINGTON.—According to the annual report of the Medical Officer of Health for Kensington, Dr. T. Orme Dudfield, little progress was made during the year in giving effect to recommendations by the Public Health Committee for the paving with asphalt of roads named in preceding annual reports, but in connexion with the refuse destructor machinery has been provided for the manufacture of "clinker-asphalt" blocks for the paving of roads in lieu of asphalt. An experimental piece of paving laid down appears to be wearing satisfactorily. It is an interesting development, remarks the Medical Officer, for should expectations be realised there would appear to be almost no limit to the use of this material for the paving of the roadways in side streets. As regards the cost of hygienic street paving, reference is made to a tender of the French Asphalt Company (which was accepted subject to their undertaking to maintain the roadways—save in exceptional cases—for a period of ten years free of charge) for laying compressed asphalt in certain streets, for 9s. 6d. per yard for 1½ in. of asphalt on concrete, or 11s. 6d. per yard for 2 in. of asphalt, the Council executing any necessary excavating and carting. It remains to be seen, the report adds, what is the relative cost of the clinker-asphalt paving, which time alone can show. The Medical Officer thinks that the paving of yards is a work that might with advantage be considerably extended as being necessary "for the prevention or remedy of insanitary conditions"—a fact sometimes lost sight of. That paving is necessary for this purpose, he contends, is indubitable, and the subject is deserving of the attention of sanitary authorities, by whom, probably, more would be done were due weight attached to the hygienic importance of cleanliness and dryness in the surroundings of dwelling-houses.

RAILWAY COMPANIES AND HOUSING.—In his annual report, which has just been issued, the Medical Officer of Health for Kensington, Dr. T. Orme Dudfield, refers to an important scheme initiated by the Great Western Railway Company under their Additional Powers Act, 1897, which enables them to acquire about 100 houses at North Kensington for the purpose of widening their line. The Company acquired land in the vicinity with a view to compliance with their statutory obligation to provide new dwellings for such number of persons as the Local Government Board should deem necessary, "having regard to the number of persons on or after" December 15, 1896, residing in the houses to be acquired, "and working within one mile therefrom. . . ." The Act requires that "the new dwellings to be provided under the scheme" shall be "completed fit for occupation before the persons residing in the houses . . . are displaced." The engineering inspector of the Local Government Board who held the local inquiry in 1906 informed the Company that accommodation should be provided for 706 persons out of the estimated number to be displaced (1,038). The Company submitted plans of proposed new dwellings showing accommodation for 670 persons in tenements of two, three, or four rooms—two persons to a room, the number of rooms being 335, and subsequently agreed to certain modifications of the plans. Although the Medical Officer's report does not record any steps having been taken by the Company to give effect to the scheme, it points out that it is a question of time only, and ultimately some 300 persons will be displaced and not rehoused in the new dwellings. And worse is to follow, for further proposed widenings of the line will involve a still larger number of displacements—in Southam-street and St. Ervan's-road, in which the Company will, under their Act of 1900, take 138 houses, the inhabitants of which, at the census in 1901, numbered over 2,000. It is probable, says the Medical Officer, that under the two schemes 1,000 persons will be displaced and not rehoused.

EXCAVATIONS AT DORCHESTER.—The British Archæological Association and the Dorset Field Club are co-operating in a scheme for carrying out important excavations at the Roman amphitheatre at Dorchester, locally known as Maumbury Rings. On the occasion of their congress last year, the British Archæological Association visited the Rings, and the suggestion that researches should be made was taken up by the local society. The necessary funds are being raised by public subscriptions, and a joint committee of the British Archæological Association and the Dorset Field Club has been formed. The consent of the Duchy of Cornwall and the Dorchester Town Council has been obtained; Mr. St. John Hope, Assistant Secretary of the Society of Antiquaries, is assisting in the matter, and Mr. St. George Gray, of Taunton, has promised his personal supervision and has undertaken to compile a report.

SHEFFIELD MASTER BUILDERS' ASSOCIATION.—The recent visit of the Sheffield Master Builders to Belgium formed the principal topic for discussion at the monthly meeting of the Association held on the 13th inst. Mr. T. Eshelby, President of the Association, occupied the chair. Mr. A. J. Forsdike, in giving a general description of the visit, pointed out that in Belgium the wages paid by builders were only just about 4d. per hour, as compared with 9½d. in England, but against this the extreme cheapness of living in Belgium accounted for much. He wondered what English workmen would think of the working hours from 6.30 a.m. to 6.30 p.m.—twelve hours per day, with one hour for meals—and on Saturday till 5.30 p.m. In other respects the Belgian builders' organisation was superb. The Antwerp Association not only had its own workmen's insurance, but retained its own solicitors, and provided its own hospitals and doctors for the care of those who suffered by accident. There could be no quibbles about

compensation, as the compensation for any accident was worked down by law to the minutest detail, and from it there was no appeal. A man received compensation after being absent from work for eight days. The premium charged by the Association was exactly the same as that charged by the insurance companies, and the insurance section had now a reserve of 2,000,000 francs, out of which it had recently purchased buildings for the establishment of head offices. Such was the success that a rebate of 30 per cent. was allowed to all members whether they had had any claims or not. Insurance against accident was not compulsory, but in the event of permanent disablement the judge required a State investment of a capital sum which would realise sufficient interest to pay the indemnity to the workmen. At Brussels the membership was 251, and there again the association had had its own insurance scheme, which covered workmen's compensation, medical liability, and third party risks. As an instance of Belgian enterprise, he mentioned the large bondage stores over which they were personally conducted by M. Deschryver. The buildings cost 280,000*l.*, and were erected in eighteen months by 300 workmen, and when he said that the works were entirely built on quicksand and that the foundations had to be made on thousands of piles with reinforced concrete, they would have some conception of the magnitude of the undertaking. It was interesting to note that for public works tenders were often given by Dutch, French, and German contractors, but no instance could be recalled of an English contractor having tendered.—Mr. Biggin, in his speech, said that a fact which struck him in Belgium was the size and ornamentation of the buildings, which it appeared were inconsistent with the amount of business which would return an adequate rental, and the same remark applied to the theatres; but on inquiry they found that this was accounted for by the fact that beautiful buildings were subsidised, and theatres were not expected to pay their way. He (Mr. Biggin) innocently inquired what dividend the Builders' Exchange at Antwerp paid, and was met with a smile. They didn't expect it to pay its way. In some respects Belgium was to the fore, while in others they thought it perhaps not quite equal to England. One thing, however, had struck him, as well as several other members of the party. At the post office they were actually paying old-age pensions, while we were only in the stage of legislation. At the conclusion of the meeting, the President (Mr. Eshelby) showed the cup presented by the Mayor of Antwerp. During the evening a presentation was made to the Secretary of the Association, Mr. Smith, as a mark of the members' appreciation of his work in connexion with the visit.

BUILDERS AND BY-LAWS.—At the last meeting of the Maldens and Coombe (Surrey) District Council, the Building and Establishment Committee brought forward a recommendation with regard to cases of non-compliance with by-laws governing new streets and buildings, which recommendation, they observed, was the result of "an entire indifference on the part of certain builders." They recommended that the attention of all builders in the district be called to the requirements of the by-laws, and that definite and emphatic intimation be given that the Council will in future lay all complaints before the Police Court at Kingston, and press for the maximum penalties provided by the by-laws; also that it be pointed out that no dwelling-house or building must be occupied until the by-laws have been complied with and the certificate of the local authority obtained.—The Vice-Chairman (Mr. G. C. Parnaby) said matters in the past had been somewhat lax in regard to compliance with the Council's regulations, but a change had taken place.—Mr. H. C. Mitchell said that undoubtedly things had been very lax in the past, but certain things which had taken place had received the sanction of the Council or the officials. Now they had a new set of officials in power, and it seemed unwise to present this like a revolver at everyone's head. In dealing with by-laws there must be a certain amount of give and take, and they did not wish their officials to deal with builders in what he might call a very strong and high-handed manner. They would find if that attitude was taken up that there would be considerable difficulty in dealing with builders in the district. He thought the builders and others concerned would take the statement made by the Vice-Chairman with regard to insisting upon full and proper compliance as sufficient notice.—Mr. Harold Bailey said the point arose through houses being inhabited before a certificate was granted.—In the result the recommendation was sent back to the Committee with a view to its being recast, Mr. Parnaby, who made the suggestion, remarking that there might be a smoother way of expressing the same sort of thing. At the same time, he thought the Council's attitude should not be altered in the least.

THE REGISTRATION OF PLUMBERS.—At a recent meeting of the Water and House Committee of the Horwich Urban District Council, the Surveyor called attention to the quantity of defective work being carried out on private fittings by persons other than those employed by recognised plumbers. It was decided that the suggestion of the Surveyor with respect to the registration and recognition of plumbers be adopted, and that steps be taken to inform the whole of the plumbers in the district, and to intimate, as far as possible, to owners of property the steps proposed to be taken, so as to obviate the various defective works.

THE MILAN-PO NAVIGABLE WATERWAY.—A Royal Commission has approved of the plan by which it is proposed to connect Milan with the Po by a navigable waterway and thence with the Adriatic. The waterway would join the Adda via Lodi, coincide with the river bed partially up to Pizzighettone, after which the stream alone would be followed till it joined the Po. The canal would be 60 kilometres long, 18 metres broad, and have a depth of 2·5 metres, which would accommodate ships of 600 tons. Beside the Porta Romana, on the south side of Milan, a harbour circa 50 acres in extent is projected, whose quays, rails, sheds, etc., could deal with a yearly handling of 10 million tons. The cost of this waterway is estimated at 57 million lire; a further sum of 9·5 million lire is to be devoted to the improvement of the Venetian canals, which are connected with the Po waterway.

ANCIENT SCOTTISH PALACES.—Mr. W. T. Oldrieve, H.M. Architect for Scotland, recently delivered a lecture on "Ancient Scottish Palaces," with limelight views, in connexion with the Vacation Courses now being held in the University of Edinburgh. Mr. Oldrieve said he could not exhibit an exhaustive list of all the ancient Royal buildings which had existed in Scotland. Fragmentary references in historical literature and local tradition might lead to the inclusion of a very large number of ruins in addition to those which would be shown. Views of several castles and palaces were thrown upon the screen. These included Rothesay Castle, Kildrummie Castle in Aberdeenshire, Dunstaffnage and Lochmaben Castles. The last mentioned was, the lecturer said, a striking example of vandalism and wilful damage and destruction. The stones of the ancient building had been removed until very little remained of this castle, which was built by the grandfather of King Robert the Bruce. When a view of Dunfermline Palace was shown, Mr. Oldrieve explained that the Government had united with the Carnegie Trust in doing all they could to preserve these interesting ruins, and were always trying to restore what had been lost. Traquair House, near Peebles, the residence of many of the Scottish kings, was shown, and this was followed by views of Linlithgow Palace as it was in the XVIth century and as it exists now. Referring to Edinburgh and Stirling Castles, Mr. Oldrieve said it was a mistake to allow the military to occupy national buildings like these. The growth of military requirements often made it necessary to encroach upon the old fabric to the disadvantage of what was ancient and interesting. The married men's quarters in Johnston-terrace were characterised as the most hideous-looking building in Edinburgh. Falkland Palace, upon which the late Marquis of Bute spent a lot of money, was next shown, and in conclusion various views of Holyrood were given.

THE M.P. PATENT SAFETY WINDOW AND VENTILATOR.—We have by us a model of the M.P. Patent Safety Window and Ventilator, of which Messrs. Mitchison & Bowden, of Newcastle-on-Tyne, are the patentees and proprietors. The chief advantage which the invention possesses is the ease and safety with which the outside of both sashes can be cleaned from the inside. The place of the usual pulley style and beads is taken by guides, in which the sashes slide; the lower half of these guides, hinged to the outside bead, is reversible; the top sash, being brought down into the reversible half, can be reversed, and thus cleaned from the inside. By an ingenious arrangement the sashes are attached by pins to blocks working behind the guides in grooves in the real pulley style, hung to the weights in the usual way. Slots are cut in the guides to allow of the usual up and down movement of the sashes, which can thus be worked in the usual manner. It is claimed for the invention that better ventilation can be obtained, while it retains all the weather-proof qualities of the ordinary double-hung sash window. In addition to this, by means of the ingenious method of hanging, the sashes can be removed without removing the beads, inasmuch as when slid into the reversible half of the guides, by removing the sash-pins they can be taken out of the frame altogether.

## Capital and Labour.

JOINERS' AND PLASTERERS' DISPUTE, SWANSEA.—The joiners and plasterers of Swansea have tendered notices to the members of the Swansea Master Builders' Association. The joiners demand an advance of wages amounting to 1d. per hour. The men now work fifty-four hours per week, so that the advance would mean 4s. 6d. per head. The matter, it is stated, will probably be referred to the Conciliation Board for settlement. The number of men affected is about 300. The object of the Plasterers' Association is to get alterations of the rules.

## Patents of the Week.

APPLICATIONS PUBLISHED.*

16,314 of 1907.—J. ERATH: *Ceiling and Device for Suspending same from Overhead Beams and the like.*

This relates to a ceiling, characterised thereby that the rods, laths, or the like are suspended by means of loops or supporting irons from iron rods or tensioned wires, which latter are fixed at certain distances apart transversely to the overhead beams or girders, and when a netting is used vulcanised-iron wires are provided; which latter are connected to the rods or tensioned wires by loops which are closed by means of specially constructed tongs, the loops being also closed by the same tongs; the tongs being characterised thereby that open wire forks are guided from a magazine to the jaws of the tongs when the latter are being opened, the ends of loops being passed around rods or tensioned wires and pressed together when closing the tongs for the purpose of forming loops; and characterised by the automatic feed of the wire forks from the magazine in such a manner that the forks in the magazine when opening the tongs are, by means of a spring-influenced rack which actuates a slider provided with a toothed lever, advanced until the fork lifting the jaws of the tongs abuts against the abbutting plates of the jaws.

18,230 of 1907.—D. M. NESBIT: *Ventilating Apparatus.*

This relates to a ventilating system employing an upcast shaft, and consists in fitting a chamber and one or more doors or valves in said shaft so adapted that so long as the chamber is in operation the doors are closed, but as soon as the said operation ceases the doors are automatically opened.

16,814 of 1907.—R. BRIERLEY: *Apparatus for Joining Lead Pipes.*

This relates to an apparatus for making joints in lead pipes, comprising a two-part mould in copper or other thin sheet metal adapted to be clamped upon the ends of the pipes to be joined, and enlarged in the centre to form a receptacle into which molten lead is poured.

21,567 of 1907.—C. WEST and C. F. SMITH: *Fastening Devices for Windows and the like.*

This relates to fastening devices for windows and the like, and consists in mounting in a more or less central position upon the window sashes a cam wheel operated by means of a handle or a key, and in some cases by both. The cam surfaces act upon the ends of two bolts or bars which extend from the central actuating device to the sides of the sashes in such a manner that, upon the central actuating device being operated, the outer ends of the said bolts or bars are forced outwards into suitable holes, or hasps, or the like in or on the window frame, and in cases where it is desired to secure both the upper and lower sash by one fastening device projections or spurs are provided on the said locking bolts or bars, which projections or spurs engage with bayonet slots or recesses in the parting rails of the adjacent sash.

23,389 of 1907.—M. J. ADAMS: *Means of Access for Inspecting Closet Traps.*

This relates to ready means of access for inspecting closet traps, and consists in forming the outlet at the back, and bringing up an opening on the top of this outlet, which is carried practically up to the level of the closet top. The opening is closed by a cap, which can be removed at will.

* All these applications are in the stage in which opposition to the grant of patents upon them can be made.

PATENTS.—*Continued on page 221.*

# List of Competitions, Contracts, etc.

**For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competition, —; Contracts, iv. vi. viii. x.; Public Appointment, —; Auction Sales, xxiv.**

**Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bond-fide tender unless stated to the contrary.**

**The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.**

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

## Competitions.

OCTOBER 7.—**Inverness.**—BOAT SHELTER.—Inverness Harbour Trustees invite engineers to submit plans for the construction of a boat shelter at the Harbour at Inverness, the total cost of the scheme not to exceed 10,000*l.* Mr. Kenneth Macdonald, Clerk to the Harbour Trustees Town House, Inverness.

* OCTOBER 31.—**Romford.**—NEW SCHOOL.—The Governors of the County High School, Romford, invite competitive designs for a new school at Romford, Essex. See advertisement in this issue for further particulars.

## Contracts.

### BUILDING.

AUGUST 22-SEPTEMBER 18.—**Sidmouth.**—SCHOOL.—Devon County Education Committee invite tenders for a new Council School at Woolbrook, Sidmouth. Bills of quantities will be available in due course on payment of 1*l.* 1s. Contractors desiring to tender must apply to the County Architect (Education), 1, Richmond-road, Exeter, enclosing a crossed cheque, drawn in favour of the County Treasurer.

AUGUST 23.—**Milnsbridge.**—HOUSE AND SHOP.—Erection of house and shop, Manchester-road, Milnsbridge. Plans may be seen, and quantities obtained, from Mr. Sanderson M. Balmford, architect, Longwood.

AUGUST 24.—**Halling.**—PLAY-SHED.—Kent Education Committee invite tenders for the erection of a play-shed and sundry improvements at Halling Council School. Plans, etc., prepared by the Committee's Architect (Mr. Wilfrid H. Robinson, M.S.A.), may be inspected upon application to the Chairman of Managers, Mr. E. G. Brown, Halling, Rochester, Kent, or at the offices of the Committee.

AUGUST 24.—**Harpurhey, Manchester.**—BATHS AND WASH-HOUSES.—The Baths and Wash-houses Committee invite tenders for the erection of Public Baths and Wash-houses in Rochdale-road, Harpurhey. Drawings may be seen, and specification, etc., obtained, at the office of the City Architect, Town Hall, upon payment of 3*l.* 3s. for each set of quantities (three). All cheques or postal orders are to be made payable to the Corporation of Manchester.

AUGUST 24.—**Sheffield.**—RANMOOR COUNCIL SCHOOL.—The Education Committee invite tenders for the works required in the erection of additions and alterations to the School and outbuildings in Fulwood-road, Nether Green, Sheffield. Names to the architect, Mr. A. F. Watson, F.R.I.B.A., 38, Church-street, Sheffield, together with a deposit of 1*l.* 1s.

AUGUST 24.—**Widdrington.**—OUT-OFFICES.—Northumberland Education Committee invites tenders for the work of erecting offices, boundary fences, gates, and providing drainage system for the Widdrington Temporary Council School. Plans may be inspected at the Committee's office.

AUGUST 25.—**Bilston.**—COTTAGE.—Bilston U.D.C. invite tenders for the erection of a cottage at the Sewage Disposal Works of Bilston, located at the Lant. Plan, etc., can be seen, and copies of the quantities, etc., obtained, at the office of the engineer, Mr. Baldwin Latham, M.Inst.C.E., Parliament-mansions, Victoria-street, Westminster, S.W., or on application to Mr. John D. Wassell, Clerk to the Council, Town Hall, Bilston, on deposit of 2*l.* 2s.

AUGUST 25.—**Halifax.**—ALTERATIONS.—Alterations required to convert the premises in Central-street and Silver-street lately occupied by the Cash Supply Stores, Ltd., into offices for the Halifax Equitable Benefit Building Society and the Halifax Equitable Bank, Ltd. Plans may be seen, and quantities obtained, at the offices of the architects, Messrs. R. Horsfall & Son, architects, 22A, Commercial-street, Halifax.

AUGUST 25.—**Halifax.**—CONVENIENCE.—The Markets Committee of the Halifax Corporation invite tenders for the execution of the mason's work (other trades included) required in building a new convenience and a new doorway into Albion-street, at the Borough Markets. Plans, etc., may be seen, and forms of tenders obtained, on application to Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax.

AUGUST 26.—**Dunblane.**—CHAPEL.—The Building Committee invite tenders for the erection of the Chapel, Queen Victoria School, Dunblane. Plans may be seen at the office of the measurers, Messrs. Alexander Hay & Co., 44, Castle-street, Edinburgh, who will supply prints of specification, etc.

AUGUST 26.—**Honley.**—HOUSES.—Erection of two semi-detached houses in Bradshaw-road, Honley. Plans may be seen, and bills of quantities obtained, at office of Mr. J. Berry, architect and surveyor, 3, Market-place, Huddersfield.

AUGUST 26.—**Knockaney, Limerick.**—RESIDENCE.—A curate's residence and out-offices at Knockaney, Co. Limerick, according to the plans and specification prepared by Mr. John Guerin, architect, Knockaney, Bruff.

AUGUST 26.—**Slaithwaite.**—HOUSES.—Erection of four dwelling-houses at Hill Top, Slaithwaite. Plans may be seen, and quantities obtained, at office of Mr. Arthur Shaw, architect, Golcar.

AUGUST 27.—**Farnworth.**—DESTRUCTOR.—Farnworth U.D.C. invite tenders for destructor building, Approach-road, and extension of Electricity Works, in Albert-road. Drawings may be seen, and specifications, etc., obtained, at the offices of the engineer, Mr. W. J. Lomax, A.M.Inst.C.E., 11, Fold-street, Bolton, on deposit of a cheque for 2*l.*

AUGUST 27.—**Huddersfield.**—WAREHOUSE.—The erection of a two-story warehouse at Longroyd Mills, Thornton-road. Plans may be seen, and bills of quantities obtained, at office of Mr. J. Berry, architect and surveyor, 3, Market-place, Huddersfield.

AUGUST 27.—**Taibach.**—PREMISES.—The Taibach and Port Talbot Co-operative Society invite tenders for the erection of new premises. Plans, etc., to be seen on the premises.

* AUGUST 29.—**Chelmsford.**—NEW CHURCH.—The Essex C.C. invite tenders for new offices for Education Committee at Chelmsford. See advertisement in this issue for further particulars.

AUGUST 29.—**Romsey.**—WARDS, ETC.—The Trustees of the Romsey Nursing Home and Cottage Hospital invite tenders for the erection of an additional building, comprising five new wards, nurses' room, and offices; also for alterations to the present building. Drawings, etc., may now be inspected at the offices of Mr. James Jenvey, architect and surveyor, Market-place, Romsey. Bills of quantities and forms of tender may be obtained on payment of 1*l.* 1s.

* AUGUST 31.—**Coventry.**—CANAL QUAY WALL.—The Gas Committee of the Coventry Corporation invite tenders for a canal quay wall. See advertisement in this issue for further particulars.

AUGUST 31.—**Litherland.**—STABLING AND MORTUARY.—The U.D.C. of Litherland invite tenders for the construction of stabling, etc., at the Council's Depôt, School-lane; also for the construction of new mortuary. Drawings, etc., may be seen, and quantities, etc., obtained, on application to Mr. A. H. Carter, Surveyor to the Council, Public Offices, Sefton-road, Litherland, on payment of the sum of 1*l.* 1s.

AUGUST 31.—**Manningham.**—LIBRARY.—The Bradford Corporation invite tenders for works of all trades required in the erection of branch library, Carlisle-road, Manningham. Drawings, etc., may be seen, and bills of quantities, etc., obtained, on application to the City Architect, Whitaker-buildings, Brewery-street, Bradford.

AUGUST 31.—**Stretford.**—BUILDINGS.—Stretford U.D.C. Electricity Committee invite tenders for the extension of the buildings at their Electricity Works, Longford Bridge, Stretford. Bills of quantities, etc., can be obtained on application to Mr. Ernest Woodhouse, F.R.I.B.A., 88, Mosley-street, Manchester, on payment of a fee of 2*l.* 2s.

AUGUST 31.—**Tonypandy.**—PREMISES.—Erection of business premises in Bridge-street, Tonypandy. Plans, etc., may be seen on application to Mrs. Williams, Anchor House, Tonypandy.

AUGUST 31.—**Usworth.**—HOUSES.—Tenders are invited for (*a*) the erection of fifty workmen's dwellings and (*b*) roadmaking and surface drainage in connexion therewith at Usworth, in the Rural District of Chester-le-Street. Plans, etc., can now be seen, and bills of quantities obtained, at the office of Messrs. Brown & Spain, architects, 51, Fawcett-street, Sunderland.

SEPTEMBER 1.—**New Sarum.**—STABLES.—The U.D.C. invite tenders for the erection of stables in Friary lane. Plans, etc., can be seen, and bills of quantities, etc., obtained, on application to Mr. W. J. Goodwin, A.M.Inst.C.E., City Engineer and Surveyor, Municipal Offices, Salisbury.

SEPTEMBER 2.—**Carlisle.**—BATHS.—The Corporation of Carlisle invite tenders for the erection and completion of Turkish Baths in James-street. Drawings, etc., at the office of Mr. Henry C. Marks, M.Inst.C.E., City Engineer and Surveyor, 36, Fisher-street, Carlisle, on deposit of 1*l.* 1s.

SEPTEMBER 2.—**Gainsborough.**—PROPOSED REFUSE DESTRUCTOR BUILDINGS.—Gainsborough U.D.C. invite tenders for the erection of the buildings in connexion with the above. The drawings may be seen, and specification, etc., obtained, from Mr. Sam W. Parker, Engineer and Surveyor, Council Offices, Gainsborough, upon payment of 2*l.* 2s.

SEPTEMBER 2.—**Kenfig Hill.**—CHURCH.—The erection of a school hall for the English Presbyterian Church at Kenfig Hill. Plans, etc., may be seen at office of Mr. Arthur Lloyd Thomas, architect and surveyor, Church-street-chambers, Pontypridd.

* SEPTEMBER 2.—**Peckham Rye.**—WALL, ETC.—The Metropolitan Asylums Board invite tenders for the erection of a wall, etc., at Peckham Rye. See advertisement in this issue for further particulars.

SEPTEMBER 5.—**Kirkburton.**—COTTAGES, ETC.—West Riding C.C. Storthes Hall Asylum Committee invite tenders for the following works:—Erection of six cottages, sett paving road to boiler-house, extension of stables. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l.* is required. Cheques, etc., must be made payable to the West Riding Treasurer, and sent to him direct at the County Hall, Wakefield.

SEPTEMBER 7.—**Newport (Mon.).**—Y.M.C.A. NEW BUILDING.—The Building Committee of the Newport Y.M.C.A. invite tenders for the erection of a new building and adaptation of existing premises in accordance with drawings, etc., prepared by the architects, Mr. C. E. Compton, M.S.A., and Messrs. Habershon, Fawckner, & Co., High-street, Newport. The drawings, etc., may be inspected at the office of the architects, and copies of the quantities can be obtained at the office of the quantity surveyor, Mr. Charles Miles, Central-chambers, Newport, upon payment of a deposit of 2*l.* 2s.

* SEPTEMBER 9.—**Sheerness.**—HALL.—The Trustees of the Masonic Hall, Sheerness, invite tenders for erection of hall. See advertisement in this issue for further particulars.

SEPTEMBER 12.—**Garraunboy.**—CHAPEL.—Erection and completion of a new chapel at Garraunboy, Killaloe, Co. Clare, for the Very Rev. Canon D. Flannery, P.P., and Committee. Drawings, etc., may be seen at the Parish Priest's house, Killaloe, or at the office of Messrs. O'Malley & O'Rourke, architects, 10, Glentworth-street, Limerick. Bills of quantities can be had at the office of the architects or with the Parish Priest.

* SEPTEMBER 14.—**Hertford.**—RECORD AND STRONG ROOM.—The Hertfordshire C.C. invite tenders for a new county record and strong room at Hertford. See advertisement in this issue for further particulars.

* SEPTEMBER 15.—**Oxford.**—CHURCH.—The Building Committee of St. Stephen's Church invite tenders for new church, Lonsdale-road, Summertown, Oxford. See advertisement in this issue for further particulars.

NO DATE.—**Cardiff.**—ALTERATIONS, ETC.—Alterations and additions at the Cardiff Steam Laundry Company, Minny-street, Cathays, Cardiff. Names to Mr. Henry Budgen, F.R.I.B.A., 95, St. Mary-street, Cardiff, together with 2*l.* 2s.

NO DATE.—**Earlsheaton.**—REPAIRS.—Repair of the steeple of St. Peter's Church, Earlsheaton. Particulars from, and tenders to be addressed to, Mr. J. Bush, Bank Top, Earlsheaton.

NO DATE.—**High Wycombe.**—ADDITIONS.—Additions to Bourne Villa, Oxford-road, High Wycombe. Plans and particulars of Messrs. Hooper & Nash, architects, Church-square, High Wycombe.

NO DATE.—**Malpas.**—SCHOOL WORKS.—Tenders are invited by the Managers for alterations and additions to the Malpas Schools, Monmouthshire. Plans may be seen at office of Mr. E. Maples Linton, architect and surveyor, 23, Westgate-chambers, Newport, Mon., and bill of quantities obtained, on deposit of 2*l.* 2s., after August 31.

NO DATE.—**Pencaitland.**—SCHOOL ADDITIONS.—The School Board of Pencaitland invite tenders for the work in connexion with additions to Pencaitland School. Schedules of quantities may be had on application to Messrs. Lyle & Constable, architects, 3, Hill-street, Edinburgh.

### ENGINEERING, IRON, AND STEEL.

AUGUST 24.—**Dartmouth.**—MOTOR, ETC.—Dartmouth Corporation invite offers for the supply of a covered motor (steam or petrol) dust wagon, or for a light traction engine and two trailers. All particulars, etc., may be obtained on application to Mr. Thos. W. Joyce, F.G.S., A.M.Inst.M.E., Borough Engineer, Borough Engineer's office, Victoria-road, Dartmouth, Devon, upon receipt of two stamps for postage.

AUGUST 24.—**Ruislip-Northwood.**—ENGINES.—The Ruislip-Northwood U.D.C. invite tenders for the supply and fixing of the following machinery (*inter alia*), viz.:—Two 10-10½ B.H.P. oil engines, two 6-6½ B.H.P. oil engines, together with shafting, etc. Further particulars, etc., may be obtained from Mr. H. Howard Humphreys, M.Inst.M.E., of 28, Victoria-street, Westminster, S.W. A deposit of 2*l.* 2s. will be required.

AUGUST 24.—**Ruislip-Northwood.**—PLANT.—The Ruislip-Northwood U.D.C. invite tenders for the supply and fixing of three 90-ft. diameter revolving sewage distributors at their Sewage Disposal Works near Ruislip Common, Middlesex. Further particulars, etc., may be obtained from Mr. H. Howard Humphreys, M.Inst.M.E., of 28, Victoria-street, Westminster, S.W. A deposit of 2*l.* 2s. will be required.

AUGUST 24.—**Stretford.**—BOILERS, ETC.—Stretford U.D.C. Electricity Committee invite tenders for the following work in connexion with their electrical undertaking:—Contract No. 27.—Steam boilers and accessories. Contract No. 28.—Economisers and

accessories. Contract No. 29.—Mechanical stokers. Forms of tender, etc., may be obtained from Mr. Geo. H. Abrahams, Clerk to the Council, Council Offices, Old Trafford, on payment of a deposit of 1*l.* 1s. in each case, and further information may be obtained from the consulting engineer, Mr. T. L. Miller, M.Inst.C.E. 19, Brazennose-street, Manchester.

AUGUST 25.—**London.**—BEARING PLATES.—The Secretary of State for India in Council invites tenders for bearing plates. The conditions of contract may be obtained on application to the Director-General of Stores, India Office, Whitehall, S.W.

AUGUST 25.—**Mountain Ash.**—RETORTS.—Mountain Ash U.D.C. invite tenders for the erection of two beds of eight retorts each at their Penrhiwceiber Gasworks. Plans, etc., may be seen at the Surveyor's office, Town Hall, Mountain Ash.

AUGUST 26.—**Chorlton-cum-Hardy.**—RAILINGS.—Manchester Education Committee invite tenders for the supplying and fixing of wrought-iron railings, gates, and guards to staircases and staircase windows at the Oswald-road Municipal School, Chorlton-cum-Hardy. Drawings, etc., may be obtained at the Education Offices, Deansgate, Manchester, on a deposit of 1*l.* 1s.

AUGUST 26.—**Doncaster.**—BRIDGE, ETC.—Doncaster Corporation invite tenders for the construction of the Marsh Gate Bridge and approaches over the Great Northern Railway at Doncaster. The contract drawings, etc., may be seen, and copies of these and of the quantities, for which a charge of 3*l.* 3s. will be made, which will not be returned, may be obtained at the office of the engineers, Messrs. Parry & Bidder, 13, Victoria-street, Westminster.

AUGUST 26.—**Lepton.**—HEATING.—New heating apparatus for Lepton Parish Church. Particulars can be obtained from Rev. T. Kenyon, Lepton Vicarage, Huddersfield.

AUGUST 27.—**Farnworth.**—PLANT.—Farnworth U.D.C. invite tenders for the supply of:—(1) Motor generators; (2) motor converters; (3) switch gear; (4) transformers; (5) removal and re-erection of accumulators. Copies of specifications, etc., may be obtained from the Council's Engineer, Mr. R. B. Leach, Electricity Works, Farnworth, upon payment of 2*l.* 2s. for each specification.

AUGUST 27.—**London.**—BRIDGE WORK.—The Mexican Railway Company, Ltd., invites tenders for the supply and delivery of 205 tons bridge work. Specifications, etc., can be obtained at the Company's office, 6, Broad-street-place, London, E.C., on payment of 5s. each.

AUGUST 28.—**Cork.**—REPAIRS TO HEATING APPARATUS.—The Council of the County Borough of Cork invite tenders for repairs, etc., to the existing heating system in the Crawford Municipal School of Art, Emmet-place, Cork. Plans etc., prepared by the City Engineer. General conditions, etc., can be seen or obtained in the City Engineer's Office, City Hall, where tender forms will be issued. Contractors must first lodge with the City Treasurer the sum of 1*l.* sterling.

AUGUST 28.—**Cork.**—HEATING BY HOT WATER, CITY HALL AND CARNEGIE FREE LIBRARY.—The Council of the County Borough of Cork invite tenders for making, fixing etc., hot-water heating apparatus in the City Hall, Albert Quay, and Carnegie Free Library, Anglesea-street, Cork. Plans, etc., prepared by the City Engineer. General conditions, etc., can be seen or obtained in the City Engineer's Office, City Hall, where tender forms will be issued. Contractors must first lodge with the City Treasurer the sum of 1*l.* sterling.

AUGUST 29.—**Rothwell.**—BRIDGE.—The West Riding C.C. invite tenders for the reconstruction of Cinder Oven Bridge, on the Leeds and Barnsdale main road, within the Urban District of Rothwell. General conditions, etc., may be obtained at the office of Mr. F. G. Carpenter, West Riding Surveyor, County Hall, Wakefield. A deposit of 1*l.* will be required. Cheques, etc., should be forwarded to the West Riding Treasurer, at the County Hall, Wakefield. The plans may be seen at the office of the West Riding Surveyor, County Hall, Wakefield.

SEPTEMBER 1.—**Birmingham.**—ROOF.—Great Western Railway Directors invite tenders for the erection of umbrella roof coverings over platforms at Birmingham (Snow Hill) Station. Plans, etc., may be seen, and forms of tender, etc., obtained, at the office of the New Works Engineer at Paddington Station, London.

SEPTEMBER 1.—**Leek.**—BRIDGE.—The R.D.C. of Leek invite tenders for building a bridge at Middlehulme, Leekfrith. Plan, etc., may be seen at the Union Offices, Russell-street, Leek.

SEPTEMBER 7.—**Dublin.**—RAILWAY WORKS.—The Board of Public Works invite tenders for the construction of five deviations on the main line of the Tralee and Dingle Light Railway. Copies of plans, etc., may be seen at office of Mr. H. Williams, Secretary, Office of Public Works, Dublin, or at the Offices of the Tralee and Dingle Railway Company, Tralee, County Kerry. Copies of the specification will be supplied on payment of 1*l.* 1s.

SEPTEMBER 10.—**Swansea.**—HYDRAULIC SHIP CAPSTANS.—Swansea Harbour Trustees invite designs and tenders for supplying, delivering, and erecting *in situ* at the King's Dock Lock, Swansea, four 5-ton and four 7-ton double-powered hydraulic ship capstans. Forms of and instructions for tender can be obtained on application to Mr. Talfourd Strick, Clerk, Harbour Offices, Swansea, on payment of 5*l.* 5s.

SEPTEMBER 12.—**Ballinasloe.**—PLANT.—The Joint Committee of Management of Ballinasloe Asylum invite tenders for the supply and erection of a steam laundry plant. Plans, etc., by the engineer, Mr. Geoffrey B. Mecnan, 5, Charleville-road, Rathmines, Dublin from whom copies may be obtained on payment of 1*l.* 1s.

SEPTEMBER 15.—**Sligo.**—ELECTRIC LIGHTING.—The Board of Governors of Sligo and Leitrim District Lunatic Asylum have instructed their architect, Mr. Anthony Scott, M.S.A., to invite tenders for lighting the above institution electrically or with petrol gas. Messrs. Anthony Scott & Son, architects, 49, Upper Sackville-street, Dublin.

NO DATE.—**Barkisland.**—BRIDGE REPAIRS.—The Barkisland U.D.C. invite tenders for the repair of Dog-lane Bridge, at Dog-lane, connecting the Urban Districts of Stainland and Barkisland. Particulars may be obtained from Mr. R. Clements, Surveyor, Council Offices, Barkisland.

NO DATE.—**Newton Rigg.**—ENGINE.—Tenders are invited for the supply and erection of an 8 to 9 horse-power oil engine at Cumberland and Westmorland Joint Dairy School and Farm, Newton Rigg, near Penrith. Full particulars may be obtained from the Manager, Newton Rigg Farm, near Penrith.

NO DATE.—**Shipley.**—ROOF.—Quotations wanted for Belfast roof, 240 ft. by 50 ft. All particulars, Mr. W. P. Butterfield, Galvanising Works, Shipley.

## MISCELLANEOUS.

AUGUST 24.—**Kingsclere.**—ROAD ROLLERS.—Kingsclere R.D.C. invite tenders for the hire of two 10-ton steam road rollers. Form of tenders and particulars may be obtained at office of Mr. W. T. Jelfs, surveyor, Kingsclere, Newbury.

AUGUST 26.—**Romney Marsh.**—STEAM ROLLING.—Romney Marsh R.D.C. invite tenders per working hour per roller, for the hire of two 10-ton steam rollers. Mr. William B. Smith, District Surveyor, New Romney.

AUGUST 27.—**Burnley.**—CARS.—Burnley Tramways Department invite tenders for the supply and delivery of five double-deck bogie cars. Conditions, etc., may be obtained on application to the General Manager, Tramways Department, Queensgate, Burnley, upon payment of 2*l.* 2s.

AUGUST 29.—**Garlands.**—FENCING.—The Committee of Visitors of Cumberland and Westmorland Asylum, Garlands, near Carlisle, invite tenders for the supply of 1,272 yds. of continuous wrought-iron fencing. Tender form, etc., can be had on application to Mr. Jos. C. Ferguson, Clerk and Steward, Garlands.

AUGUST 31.—**Dublin.**—FURNITURE.—The Public Libraries Committee of the City of Dublin invite tenders for furniture (chairs, tables, etc.) and fittings (shelving, etc) for the extensions at the Public Library, Charleville Mall, in accordance with plans, etc., which can be seen at the office of the City Architect, Municipal Buildings, Cork Hill. A copy of the specification, etc., can be obtained in the office of the City Treasurer on payment of 1*l.*

AUGUST 31.—**Emley.**—STEAM ROLLING.—Emley U.D.C., near Wakefield, invite tenders for the steam rolling within their district. Mr. F. C. Heath, Clerk.

AUGUST 31.—**Havant.**—FENCING.—The U.D.C. of Havant invite tenders for the erection of fences and gates to the private road leading from Brockhampton-lane to the Sewage Disposal Works. Specifications, etc., may be obtained at the offices of the engineers, Messrs. Lemon & Blizard, M.M.Inst.C.E., Lansdowne House, Castle-lane, Southampton.

✱ AUGUST 31.—**Homerton.**—ELECTRIC LIGHT.—The Guardians of the Hackney Union invite tenders for electric light and power fittings and electric bell and telephone installation at Pavilion "D" at Infirmary, Homerton, N.E. See advertisement in this issue for further particulars.

SEPTEMBER 1.—**Eyemouth.**—DREDGING.—The Eyemouth Harbour Trustees invite tenders for the dredging of 12,000 cubic yds. or thereabouts of gravel, silt, etc., which has accumulated in the harbour and channel at Eyemouth. Plans may be seen, and copies of the specification and form of tender obtained, from Messrs. Thomas Meik & Sons, 29, St. Andrew-square, Edinburgh.

SEPTEMBER 1.—**Manchester.**—TRUCKS.—Manchester Corporation Tramways Committee invite tenders for the supply and delivery of tram-car trucks. Specifications, etc., may be obtained on application to Mr. J. M. M'Elroy, General Manager, Tramways Department, 55, Piccadilly, Manchester.

✱ SEPTEMBER 2.—**Carshalton.**—JOINERY FITTINGS.—The Metropolitan Asylums Board invite tenders for making and fixing joinery fittings at the Southern Hospital. See advertisement in this issue for further particulars.

SEPTEMBER 5.—**Short Heath.**—SCAVENGING.—The Short Heath U.D.C. invite tenders for the removal of excrement and house refuse within their district. Mr. Joseph Lycett, Clerk (*pro tem.*), Short Heath.

SEPTEMBER 7.—**Ryton.**—CARTAGE.—The U.D.C. of Ryton invite tenders for the carfage of road metal. Particulars may be obtained on application to Mr. John P. Dalton, Surveyor, Ryton-on-Tyne.

## PAINTING, etc.

AUGUST 24.—**Leeds.**—PAINTING.—Leeds Corporation invite tenders for painting at the Town Hall, Municipal Buildings, and Jewish Baths, Albert-grove. The specifications may be seen, and forms of tender, etc., obtained, at the City Engineer's Office, on payment of a deposit of 1*l.* 1s.

AUGUST 27.—**Surbiton.**—PAINTING.—The U.D.C. of Surbiton invite tenders for painting the outside and a portion of the interior of the Council Offices. Specification, etc., can be obtained by personal application at office of Mr. Henry T. Matter, Engineer and Surveyor, Council Offices, Surbiton, any day during office hours.

✱ SEPTEMBER 2.—**Brentwood and Dartford.**—PAINTING, ETC.—The Metropolitan Asylums Board invite tenders for cleaning and painting at a school, Brentwood, and a hospital at Dartford. See advertisement in this issue for further particulars.

## ROADS, SANITARY, AND WATER WORKS.

AUGUST 24.—**Halifax.**—SEWERS.—The Highways Committee of the Halifax Corporation invite tenders for the construction of about 1,400 yds. of 15 in. and 12 in. diameter earthenware pipe sewers in Moor End-road, Mount Tabor-road, and Heath Hill-road. Plans, etc., may be seen, and forms of tender obtained, on application to Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1*l.*

AUGUST 24.—**Halifax.**—STREET WORKS.—The Highways Committee of the Halifax Corporation invite tenders for the execution of private improvement works in All Souls'-street and Sunny Bank-terrace. Plans, etc., may be seen, and forms of tender obtained, on application to Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1*l.*

AUGUST 24.—**Islip.**—SEWAGE WORKS.—Thrapston R.D.C. invite tenders for the construction of a septic tank, filter-bed, sewer, etc., in the Parish of Islip. Specifications can be obtained from Mr. T. Lloyd, District Surveyor, Thrapston. (A deposit of 5s. must be made for specification.) Plans, etc., can be examined by appointment with the Surveyor.

AUGUST 25.—**Gateshead.**—STREET WORKS.—Gateshead Corporation invite tenders for paving, etc., streets, Plans, etc., may be seen, and quantities obtained, at the office of Mr. N. P. Pattinson, Borough Engineer, Town Hall, Gateshead.

AUGUST 25.—**Nuneaton.**—FILTER-BED.—Tenders are invited for the construction of a waterworks filter-bed in Hennebique's ferro-concrete construction. Plans, etc., may be seen, and form of tender obtained on application at office of Mr. F. C. Cook, Water Engineer, Municipal Offices, Nuneaton.

AUGUST 25.—**Sowerby.**—SETTS.—The Sowerby U.D.C. invite tenders for setting and redressing of old setts in the Halifax and Rochdale main road, Triangle. Mr. Eli Hardley, Surveyor to the Council.

AUGUST 26-SEPTEMBER 2.—**Wemyss, Buckhaven, Methil, etc.**—WATER WORKS.—The Joint Water Committee of Management of the Water Supply for the Special Water District of Wemyss and the Special Water District of Buckhaven, Methil, and Innerleven, invite tenders for cutting tracks and laying and jointing about six miles of cast-iron pipes. Plans may be seen, and copies of the specification, etc., may be obtained, at the office of the engineers, Messrs. J. & A. Leslie & Reid, C.E., 72A, George-street, Edinburgh, or 9, Victoria-street, Westminster, S.W., on payment of 1*l.*

AUGUST 27.—**Dewsbury.**—PAVING.—The Corporation invite tenders for the paving, flagging, etc., of Oastler-street. Plans, etc., may be seen, and forms of tender obtained, on application to the Borough Surveyor's office, Town Hall, Dewsbury.

AUGUST 27-SEPTEMBER 5.—**East Westmorland.**—BROUGH WATER SUPPLY WORKS.—The R.D.C. of East Westmorland invite tenders for:—Supplying about 90 tons of 3-in. iron pipes and connexions; carting, laying, and jointing pipes (about three miles); supplying and fixing valves and hydrants; building service reservoir, collecting tank, and works at head, all on Helbeck Fell. Plans, etc., may be seen at the office of the engineers, Messrs. Geo. Watson & Son, St. Andrew's-chambers, Penrith, who will supply copies of same with schedule of quantities, etc., upon payment of 2*l.* 2s.

AUGUST 27.—**Rhondda.**—DRAINAGE.—Rhondda U.D.C. invite tenders for laying about 400 yds. of 12-in. and 9-in. surface-water drain at Williamstown, Penygraig. Plans, etc., may be seen, and forms of tender obtained, at the Public Offices, Pentre, on payment of a deposit of 1*l.* 1s.

AUGUST 29.—**Swansea.**—EXTENSION OF WATER MAINS.—Swansea R.D.C. invite tenders for the work of excavating and laying water mains, fixing sluice valves, hydrants, etc., including all haulage:—(1) From Pontardulais to Pontliw, in the Parish of Llandilo-Talybont—9,240 yds. of 4-in. main; (2) from Llansamlet to Bonymaen—5,016 yds. of 4-in. and 834 yds. of 3-in. mains; (3) from Kingsbridge to Lower Loughor—420 yds. of 6-in. and 2,994 yds. of 4-in. mains; (4) from the main road to the Isolation Hospital at Garngoch, 517 yds. of 2-in. mains. Plans, etc., may be inspected at the offices of Mr. T. Trevor Williams, Engineer, District Council Offices, Alexandra-road, Swansea, from whom all further information may be obtained.

AUGUST 29.—**Swansea.**—PIPES, ETC.—Swansea R.D.C. invite tenders for the supply of cast-iron pipes, steel tubes, valves, hydrants, castings, etc. Plans, etc., may be inspected at the offices of Mr. T. Trevor Williams, Engineer, District Council Offices, Alexandra-road, Swansea, from whom all further information may be obtained.

✱ AUGUST 31.—**Coventry.**—PAVING.—The Gas Committee of the Coventry Corporation invite tenders for paving 7,500 sq. yds. with 4-in. granite cubes. See advertisement in this issue for further particulars.

AUGUST 31.—**Hastings.**—SEWER.—The Corporation invite tenders for the laying of a pipe sewer in road at rear of Robertson-street, Hastings, and other work in connexion therewith. Drawing, etc., may be seen, and form of tender obtained, at the office of the Borough Engineer, Mr. P. H. Palmer, M.Inst.C.E., Town Hall, Hastings.

AUGUST 31.—**Hoylehouse.**—SEWERS.—Linthwaite U.D.C. invite tenders for the construction of sewers, manholes, etc., at Hoylehouse. Plans, etc., may be seen at offices of Messrs. Abbey & Hanson, civil engineers, 11, Cloth Hall-street, Huddersfield, where bills of quantities may be obtained.

AUGUST 31.—**Maldon.**—WATER MAINS.—The Corporation of Maldon invite tenders for 620 yds. of 6-in. and 4-in. cast-iron water mains. Specification, etc., may be obtained from the Borough Surveyor.

SEPTEMBER 1.—**King's Lynn.**—SEWER.—The Corporation invites tenders for relaying the sewer in Waterloo-street. Full particulars may be obtained from Mr. J. H. Webb, Borough Surveyor, Town Hall, King's Lynn.

SEPTEMBER 1.—**Liversedge.**—HAREPARK-LANE AND CLOUGH-LANE SEWAGE WORKS.—Liversedge U.D.C. invite tenders for the construction of sewage-disposal works; also for the provision and laying of about 1,700 lineal yds. of 12-in., 9-in., and 6-in. earthenware pipe sewers. Plans, etc., may be seen, and bills of quantities etc., obtained, on application at the office of Mr. F. Langley, M.S.E., Engineer and Surveyor, Council Offices, Liversedge, upon a cash deposit of 2*l.* 2s.

SEPTEMBER 1.—**Scunthorpe.**—LAYING-OUT.—Tenders are invited for the supply of all material and the execution of the works in laying out new building estate, Clayfield Closes, Scunthorpe. Specifications, etc., may be seen, and schedules, etc., obtained, at

the office of Mr. Alexander M. Cobban, engineer and surveyor, 12, Home-street, Scunthorpe.

SEPTEMBER 1.—**Watford.**—SEWERAGE.—Watford U.D.C. invite tenders for the construction of about 130 yds. lineal of 6-in. stoneware pipe sewers, with the necessary inspection chambers, etc. Drawings, etc., may be seen, and form, etc., obtained, on application to Mr. D. Waterhouse, Engineer, Council Offices, High-street, Watford.

SEPTEMBER 1.—**Woodford.**—SEWERAGE.—Woodford U.D.C. invite tenders for the construction of 15-in., 12-in., and 9-in. pipe sewers, in Chigwell-road, Salway-hill, Snakes-lane, and Grove-hill. Plans, etc., may be seen, and bills of quantities, etc., obtained, on application to Mr. William Farrington, Surveyor to the Council, Council Offices, Woodford Green, upon deposit of 2l. 2s.

SEPTEMBER 1.—**Woodford.**—STREET WORKS.—Woodford U.D.C. invite tenders for works of kerbing, channelling, and making-up roads. Plans, etc., may be seen, and bills of quantities and forms of tender obtained, on application to Mr. William Farrington, Surveyor to the Council, Council Offices, Woodford Green, upon deposit of 2l. 2s.

SEPTEMBER 2.—**Clacton-on-Sea.**—SEWERAGE.—The Clacton U.D.C. invite tenders for the construction of 193 yds. of 24-in. and 367 yds. of 18-in. diameter stoneware pipe storm-water relief sewers in Rosemary-road, Clacton. The plans may be seen, and quantities, etc., obtained, at the office of the Engineer, Mr. W. H. Radford, C.E., Albion-chambers, King-street, Nottingham, on deposit of 2l. 2s. A copy of the plans may also be seen at the Surveyor's Office, Town Hall, Clacton-on-Sea.

SEPTEMBER 3.—**Dunfermline.**—WATER MAIN.—Dunfermline Corporation invite tenders for providing and laying about 3,200 lineal yds. of 9-in. cast-iron water main. Detailed schedule may be had from Mr. Andrew W. Bell, Burgh Engineer.

SEPTEMBER 3.—**Hounslow.**—STREET WORKS.—The U.D.C. of Heston and Isleworth invite tenders for the making-up of Bulstrode-avenue, Hounslow. The plans, etc., may be seen, and specification, etc., obtained, from Mr. J. G. Carey, the Engineer and Surveyor to the Council, Council House, Hounslow, on payment of the sum of 2l. 2s.

SEPTEMBER 5.—**Amble.**—MAKING-UP.—Amble U.D.C. invite tenders for making-up Acklington-street and Scott-street. Plans, etc., to be seen at the surveyor's office.

SEPTEMBER 7.—**Derby.**—SEWAGE DISPOSAL WORKS.—The Derby Corporation invite tenders for the construction of six separator tanks and pump-house, together with all the necessary culverts, pipes, and other works connected therewith. The drawings may be seen, and copies of the specification, etc., obtained, at the office of the engineers, Messrs. James Mansergh & Sons, 5, Victoria-street, Westminster, on the deposit of cheque or banknote for 5l.

SEPTEMBER 7.—**Yardley.**—CONCRETE SLAB PAVING.—Worcestershire C.C. Highways and Bridges Committee invite tenders for supplying and laying about 900 super. yds. of concrete slab paving on Stratford main road footways, at Sparkhill, in the Parish of Yardley. Specification, etc., can be obtained on application to Mr. J. H. Garrett, County Road Surveyor, Shire Hall, Worcester.

SEPTEMBER 9.—**Groombridge.**—SEWER WORKS.—The R.D.C. of East Grinstead invite tenders for providing and laying about 200 lin. yds. of 9-in. stoneware pipes, and about 35 lin. yds. of 9-in. cast-iron pipes. The drawings may be seen by appointment at the office of the Surveyor, Mr. Charles Turton, 6, High-street, East Grinstead, from whom copies of all bills of quantities, etc., may be obtained on payment of the sum of 1l. 1s.

SEPTEMBER 14.—**Galashiels.**—DRAINAGE AND SEWAGE PURIFICATION WORKS.—The Engineer, Mr. W. A. Baird Laing, or his assistant, will attend at the Burgh Buildings, Galashiels, on August 25 to accompany contractors over and point out the site of the works; and the plans, etc., may be inspected at Mr. Laing's office, 173, Hope-street, Glasgow.

SEPTEMBER 15.—**Barking Town.**—SEWERS.—Barking Town U.D.C. invite tenders for the construction of about 325 lin. yds. of sewer and surface-water drain, in connexion with the Upney Valley Drainage Scheme. Plans, etc., can be seen, and specification, etc., obtained, upon application to Mr. C. F. Dawson, Surveyor to the Council, Public Offices, Barking.

SEPTEMBER 15.—**Lewisham.**—ROAD REPAIRS, ETC.—The Council invite tenders for road repairs in the Borough, and for the scavenging and watering of the roads and the collection and removal of house and trade refuse in Division No. 3 of the Borough. The specifications, etc., may be seen, and forms of tender obtained, at the Town Hall, Catford (Surveyor's Department). Copies of the specifications, etc., may also be had on payment of the sum of 5s., which will not be returned.

SEPTEMBER 16.—**Bexley.**—STREET WORKS.—Bexley U.D.C. invite tenders for the levelling, kerbing, channelling, tar paving, draining, and making good of nine streets on the Oaklands and Broadway Estates, and for the carrying out of the Lion-road improvement, all at Bexley Heath. Plans, etc., may be seen, and specifications, etc., obtained, on application to Mr. W. T. Howse, Surveyor, Council Offices, Bexley Heath, and upon payment of 2l. 2s.

SEPTEMBER 21.—**Prestwich.**—SEWER.—The U.D.C. of Prestwich invite tenders for the supplying and laying of about 2,800 yds. of 24-in. diameter stoneware or earthenware and cast-iron pipe sewer. Specification, etc., by Engineer, Mr. Sydney H. Morgan, A.M.Inst.C.E. The drawings may be seen, and copies of the specification, etc., obtained at the office of Mr. Morgan, the Council Offices, Prestwich, Lancashire, upon payment of 2l. 2s.

## STONE, MATERIALS, AND STORES.

AUGUST 25.—**Durham.**—STORES.—Durham County Lunatic Asylum Visiting Committee invite tenders for supplying the Asylum with articles. Forms and conditions of tender may be had on application at the office of the Steward, at the Asylum.

AUGUST 25.—**London.**—SLEEPERS, ETC.—The Madras and Southern Mahratta Railway Company, Ltd., Board of Directors, invite tenders for:—(1) Cast-iron pot sleepers and fittings; (2) cast-iron chairs; (3) wrought-iron spikes; (4) steel fish-bolts, nuts, and washers; (5) steel rails and fish-plates, as per specifications and drawings which may be seen at the offices of the Company, 4c, Queen Anne's-gate, Westminster, S.W. The charge for each specification is 1l. 1s., which will not be returned.

AUGUST 25.—**Nantwich.**—MATERIALS.—Nantwich U.D.C. invite tenders for supply and delivery of road materials. Mr. W. F. Newey, C.E., the Council's Surveyor.

AUGUST 26.—**Rochdale.**—OIL.—Rochdale Gas and Electricity Committee invite tenders for the supply of 600 tons of oil, suitable for the manufacture of carburetted water gas. A gallon sample of the oil offered must be sent to Mr. T. Banbury Ball, the Manager, at the Gasworks, Dane-street.

AUGUST 27.—**Barnet.**—MATERIALS.—Barnet U.D.C. invite tenders for the supply and delivery to High Barnet Station, G.N.R., carriage paid, of materials. Forms of tender can be obtained at offices of Mr. H. W. Poole, Clerk of the Council, 85, High-street, Barnet.

AUGUST 31.—**Faversham.**—GRANITE.—The Corporation of the Borough of Faversham invite tenders for the supply of 625 tons (more or less) of Guernsey granite or basalt, and of 60 tons (more or less) of clean ½-inch Guernsey granite or basalt chippings. No special forms of tender will be provided. Mr. Allan Tassell, Town Clerk, Faversham.

AUGUST 31.—**Lymington.**—GRANITE, ETC.—The T.C. invite tenders for the supply and delivery of about 236 tons of either Devonshire granite or basalt, and about 15 tons of granite chippings. Samples to be forwarded to Mr. F. Hill Pare, Borough Surveyor.

AUGUST 31.—**St. Albans.**—GRANITE.—The Corporation of St. Albans invite tenders for the supply of broken granite (about 1,000 tons). Forms of tender can be obtained of the City Surveyor, Victoria-street, St. Albans.

SEPTEMBER 1.—**London.**—STORES.—Bombay, Baroda, and Central India Railway Directors invite tenders for the supply of the following stores:—(1) Red and white lead; (2) wood screws, etc.; (3) chemically dressed wagon covers; (4) wrought-iron and mild steel bolts, nuts, rivets, etc.; (5) steel tyres for carriages and wagons. Forms can be obtained at offices of Mr. W. V. Constable, Secretary, Gloucester House, 2, 3, and 4, Bishopsgate-street Without, London, E.C., on payment of 21s. each (which will not be returned).

SEPTEMBER 4.—**Guildford.**—ARTICLES.—Guildford R.D.C. invite tenders for the supply of wheelbarrows, picks, shovels, spades, brooms, and other roadmen's tools. Forms of tender can be obtained from the Council's Surveyor or Mr. W. S. V. Cullerne, Clerk to the Council, Commercial-road, Guildford.

SEPTEMBER 5.—**Wakefield.**—CAST-IRON PIPES.—The Corporation invite tenders for the supply of about 20 tons of special cast-iron pipes. Drawings, etc., may be seen, and bills of quantities and form of tender obtained, at the office of Mr. C. Clemesha Smith, M.Inst.C.E., the Waterworks Engineer, Town Hall, Wakefield.

# Auction Sales.

| Nature and Place of Sale. | By whom Offered. | Date of Sale. |
|---|---|---|
| *DEALS, BATTENS, ETC.—Great Hall, Winchester House, Old Broad-street, E.C. | Churchill & Sims | Aug. 26 |
| *STOCK AND PLANT—25, Auckland-street, Upper Kennington-lane | Horne & Co. | Sept. 3 |

**PATENTS.**—*Continued from page 218.*

26,932 of 1907.—E. SMITH: *Hot-water Heating Apparatus.*

This relates to the combination in a heating device of a lamp, gas ring, or other source of heat, a flat horizontal boiler above said source of heat, a water reservoir in contact with said boiler, and a flat, narrow condensing box above and communicating with said reservoir adapted to condense completely the water evaporated from the boiler and return the same thereto.

2,325 of 1908.—A. Y. LEE: *Window Sashes.*

This relates to a window sash having an open-ended guideway adapted to receive a pane of glass, a filler member enclosing the open end of the guideway, and a fastening embracing the filler member and forced into the window sash, whereby breaking of the glass by forcing the fastening is prevented.

5,331 of 1908.—R. G. HOWSON: *Pulls or Operating Devices for Sanitary Flushing and like Apparatus.*

This relates to pulls for operating the siphons or valves of cisterns, water-closets, and other sanitary appliances for asylums and other institutions, and consists in the provision of a wheel or pulley to which the chain or link is attached that is connected to the valve of the cistern or other part to be operated; and this wheel or pulley is so carried upon a mounting plate that part of its periphery protrudes beyond the normal face of the plate to form part of a spherical face formed upon the mounting plate. Stops are provided upon the wheel or pulley, and a projection or lug is formed on that part of the periphery of the wheel or pulley protruding on the spherical face of the mounting plate, so as thus the wheel or pulley may be partially rotated.

16,954 of 1907.—F. SMALE: *Moulds for Making Building and other Blocks and Appliances Connected Therewith.*

This relates to collapsible moulds for moulding blocks for building and other purposes of the type in which the ends are hinged to a back member rigidly connected to the base, the front being hinged to the base so as to open downwards, and consists of a partially collapsible moulding-box, the base and back being cast in one piece, the two ends right and left being hinged so as to swing freely outwards, and on each right and left end is affixed on a pin, movable hand levers, and each of such levers is slightly bevelled so that when the front and ends are brought together the hand levers are easily lifted into position and set down tight into the staples or catches to receive them. A false bottom is used, and on the underside of the base or bottom of the moulding-box is a centre rib or fillet. A lamp is used for warming the head of the plunger or compressor, so that it will leave the mould quite clean.

467 of 1908.—E. BOUGLEUX: *Process for the Further Treatment of Puzzolane and other Volcanic Earths for the Purpose of Facilitating their Admixture and Binding with Lime and Cement.*

This relates to a process for the treatment of puzzolane, trass, and other volcanic earths for the purpose of facilitating their admixture and binding with lime and cement, and to make them more resisting for the purpose of use; characterised by the fact that these raw materials are first exposed to the sun, then brought into covered chambers to dry naturally and become oxidised by the air and by currents of oxidising gases, after which they are brought into long cylinders through which fire or very hot gases pass for the purpose of drying them completely and oxidising them at the same time; the temperature within the cylinders must be so high that the lime contained in said materials again becomes effective as well as the other substances which are contained in puzzolane and volcanic earths, which, undergoing the same action again, become effective; after which the raw materials are ground in the usual way, mixed, and pressed together.

28,615 of 1907.—W. J. GILLILAND: *Union Bars for Use in Combined Metal and Concrete and other Structures, and Structures Embodying Such Bars.*

This relates to flat union bars for use in structures which combine metal and concrete or brickwork, and are commonly called reinforced structures, and relates especially to structures wherein the bars are subject to tensile stresses. According to the invention the perforations are made circular, each perforation being completely surrounded at one or other, or both sides by a strengthening fillet somewhat after the nature of annular flanges already proposed in connexion with the webs of girders, so that the locking effected is equal in all directions in the plane of the bar. According to one form the bar has a series of circular perforations surrounded on one side of the bar by annular fillets. According to another form the fillets surround alternate perforations on one side of the bar, and surround the remaining non-corresponding alternate perforations on the other side of the bar; and according to another form each perforation is surrounded at each side of the bar with an annular fillet which may individually project to a lesser extent than when a fillet is arranged on one side only of the bar.

21,069 of 1907.—W. SURMANN: *Press with Intermittently Rotating Mould-table for Making Briquettes, Artificial Stone Blocks, and the like.*

This relates to a press with an intermittently rotating mould-table for making briquettes, artificial stone blocks, and the like, comprising a toothed driving sector and a segment of a circular stop disc, both cast together; the disc immediately below and diametrically opposite the sector, which combines sector and segment respectively, effect the rotation and stopping of the mould-table by their engaging with tappets or rollers of different lengths to suit the level of the teeth of the sector and that of the rim of the segmental disc respectively in such a manner that the table in all positions will be in positive and close contact either with the teeth of the sector or with the rim of the disc for turning the mould-table or stopping its rotation; a feeding receptacle for receiving the material to be pressed arranged directly over a mould in the intermittently rotating mould-table, and a preliminarily pressing stamp which also serves for pushing the material from the filling mould into the mould, characterised by the filling and preliminarily pressing stamp which is guided vertically being moved by a cam rotating with the shaft of the stirrer, by means of a lever pivoted to the feeding receptacle, and resting with a roller on the rim of the cam; the stamp being allowed to fall freely by the roller running into a recess in the rim of the cam, and being raised again by the roller running up the sloping side of said recess. A guide and pressing block are arranged to form a circular track for the plungers in the moulds, said plungers being raised from the pressing block on to the guide at the place of ejection of the plungers by a special lifting device, characterised by such lifting device for lowering the plungers from the guide on to the pressing block being arranged also at the filling place, besides at the ejecting place, and by these two lifting devices being moved up and down by special gearing, so that they are moved from or to the guide at a suitable moment, so as to remove or deliver the plungers; the latter having come on to the guide during the rotation of the table, the downward movement of said lifting devices being limited by the pressing block so that they rest with their heads on the latter, whereby the upper surfaces of their heads always coincide with the upper surface of the pressing block in their lower position.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

August 6.—By LEONARD T. DAVEY (at Fordingbridge).

| | |
|---|---|
| Fordingbridge, Hants. — Freehold cottage, 1 a. 0 r. 24 p., w.r. 11*l.* 12*s* | £175 |
| Blissford, Hants.—Blissford View, 14 a. 0 r. 27 p., f., y. and w.r. 71*l.* 12*s* | 730 |
| Burgate, Hants.—Newfoundland House, 4 a. 2 r. 8 p., f., p. | 355 |

By WALLER & KING (at Yarmouth).

| | |
|---|---|
| Yarmouth, Isle of Wight.—St. James's-st., freehold villa, y.r. 20*l.* | 375 |

By BOARDMAN & OLIVER (at Sudbury).

| | |
|---|---|
| Alphamstone, Essex.—Lower Goulds Farm, 139 a. 3 r. 15 p., f., p. | 1,600 |

By R. WOOD (at Madley).

| | |
|---|---|
| Madley, Hereford.—Paradise Villa, f., p. | 210 |

August 7.—By GEO. DURRANT & SONS (at Beccles).

| | |
|---|---|
| Toft Monks, Norfolk.—Farm, 128 a. 3 r. 18 p., f., p. | 1,550 |
| Hadiscoe, Norfolk.—Accommodation land, 4 a. 0 r. 26 p., f., p. | 180 |

By W. M. STICKNEY & SON (at Hull).

| | |
|---|---|
| Hutton Cranswick, Yorks.—Two freehold farms, 296 a. 3 r. 14 p. | 6,400 |
| Three freehold houses and enclosures, 22 a. 0 r. 25 p. | 1,960 |
| Three freehold houses and enclosures, 11 a. 0 r. 39 p. | 905 |
| Six closes of grass land, 80 a. 0 r. 17 p., f. | 1,595 |
| Roos, Yorks.—Freehold farm and house, 253 a. 0 r. 22 p. | 5,790 |
| Danthorpe, Yorks.—Freehold enclosures of arable and grass, 9 a. 1 r. 28 p. | 345 |

August 10.—By THOMPSON & WOOD (at Grimsby).

| | |
|---|---|
| Healing, Lincoln.—Station-rd., building land, ½ a., f., p. | 205 |
| Tetney, Lincoln.—Holding, 28 acres, f., p. | 1,075 |

August 11.—By FLEURET, SONS, & ADAMS.

| | |
|---|---|
| Chislehurst, Kent.—High-st., "The Queen's Head" p.h., lease for 21 yrs. at 120*l.*, p. | 3,250 |

August 13.—By STIMSON & SONS.

| | |
|---|---|
| Willesden.—2 to 10, Preston-pl. (stabling), u.t. 73 yrs., g.r. 45*l.*, w.r. 265*l.* 4*s* | 270 |
| Kilburn.—123, Cambridge-rd., u.t. 56 yrs., g.r. 7*l.*, w.r. 70*l.* 4*s* | 240 |
| Camberwell. — 55, Westmacott-st., f., w.r. 41*l.* 12*s* | 340 |
| 18, Mansion-st., u.t. 57 yrs., g.r. 6*l.*, w.r. 35*l.* 12*s* | 155 |
| 84 and 86, Acorn-st., u.t. 26½ yrs., g.r. 2*l.* 12*s*., w.r. 46*l.* 16*s* | 205 |
| 322A, Camberwell New-rd. (workshops, yards, etc.), u.t. 60 yrs., g.r. 40*l.*, y.r. 150*l.* | 900 |
| Peckham.—18, Peckham-pk.-rd. (s.), f., y.r. 45*l.* | £650 |
| Battersea.—35, Beauchamp-rd., u.t. 72 yrs. g.r. 7*l.* 4*s.* 6*d.*, e.r. 4*l.* | 175 |

*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

## PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

### BRICKS, &c.

| | £ s. d. | |
|---|---|---|
| Best Stocks | 1 8 0 | per 1000 alongside, in river. |
| Picked Stocks for Facings | 2 10 0 | " delivered. |
| Flettons | 1 7 0 | " at railway depôt. |
| Best Fareham Red | 3 12 0 | " " " |
| Best Red Pressed Ruabon Facing | 5 0 0 | " " " |
| Best Blue Pressed Staffordshire | 3 15 0 | " " " |
| Do. Bullnose | 4 0 0 | " " " |
| Best Stourbridge Fire Bricks | 3 14 0 | " " " |
| GLAZED BRICKS. | | |
| Best White and Ivory Glazed Stretchers | 10 7 6 | " " " |
| Headers | 9 17 6 | " " " |
| Quoins, Bullnose, and Flats | 13 17 6 | " " " |
| Double Stretchers | 15 17 6 | " " " |
| Double Headers | 12 17 6 | " " " |
| One Side and two Ends | 16 17 6 | " " " |
| Two Sides and one End | 17 17 6 | " " " |
| Splays, Chamferred, Squints | 15 10 0 | " " " |
| Best Dipped Salt Glazed Stretchers | 10 7 6 | " " " |
| Headers | 9 17 6 | " " " |
| Quoins, Bullnose, and Flats | 13 17 6 | " " " |
| Double Stretchers | 15 17 6 | " " " |
| Double Headers | 12 17 6 | " " " |
| One Side and two Ends | 16 17 6 | " " " |
| Two Sides and one End | 17 17 6 | " " " |
| Splays, Chamferred, Squints | 15 10 0 | " " " |
| Second Quality White and Dipped Salt Glazed | 1 5 0 | per 1000 less than best. |

| | s. d. | |
|---|---|---|
| Thames and Pit Sand | 6 6 | per yard, delivered. |
| Thames Ballast | 5 0 | " " |
| Best Portland Cement | 28 0 | per ton, " |
| Best Ground Blue Lias Lime | 19 0 | " " |

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

| | |
|---|---|
| Grey Stone Lime | 11s. 6d. per yard, delivered. |
| Stourbridge Fireclay in sacks | 27s. 0d. per ton at rly. dpt. |

### STONE.

| | s. d. | |
|---|---|---|
| BATH STONE—delivered on road waggons, Paddington Depôt | 1 6½ | per ft. cube. |
| Do. do. delivered on road waggons, Nine Elms Depôt | 1 8½ | " " |
| PORTLAND STONE (20 ft. average)—Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf | 2 1 | " " |
| White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf | 2 2½ | " " |
| Ancaster in blocks | 1 10 | per ft. cube, deld. rly. depôt. |
| Beer " | 1 6 | " " |
| Greenshill " | 1 10 | " " |
| Darley Dale in blocks | 2 4 | " " |
| Red Corsehill " | 2 2 | " " |
| Closeburnlked Freestone | 2 0 | " " |
| Red Mansfield " | 2 4 | " " |

YORK STONE—*Robin Hood Quality.*

| | s. d. | |
|---|---|---|
| Scappled random blocks | 2 10 | " " |
| 6 in. sawn two sides landings to sizes (under 40 ft. super.) | 2 3 | per ft. super. " |
| 6 in. rubbed two sides ditto, ditto | 2 6 | " " |
| 3 in. sawn two sides slabs (random sizes) | 0 11½ | per ft. cube " |
| 2 in. to 2½ in. sawn one side slabs (random sizes) | 0 7½ | " " |
| 1½ in. to 2 in. ditto, ditto | 0 6 | " " |
| HARD YORK— | | |
| Scappled random blocks | 3 0 | " " |
| 6 in. sawn two sides landings to sizes (under 40 ft. super.) | 2 8 | per ft. super. " |
| 6 in. rubbed two sides ditto | 3 0 | " " |
| 3 in. sawn two sides slabs (random sizes) | 1 2 | " " |
| 2 in. self-faced random flags | 0 5 | " " |

### SLATES.

| In. In. | £ s. d. | |
|---|---|---|
| 20×10 best blue Bangor | 13 2 6 | per 1000 of 1200 at r.d |
| 20×12 " " | 15 17 6 | " " |
| 20×10 first quality | 13 0 0 | " " |
| 20×12 " " | 13 15 0 | " " |
| 16×8 " " | 7 5 0 | " " |
| 20×10 best blue Portmadoc | 12 12 6 | " " |
| 16×8 " " | 6 12 6 | " " |
| 20×10 best Eureka unfading green | 15 17 6 | " " |
| 20×12 " " | 18 7 6 | " " |
| 18×10 " " | 13 5 0 | " " |
| 16×8 " " | 10 5 0 | " " |
| 20×10 permanent green | 11 13 6 | " " |
| 18×10 " " | 9 12 6 | " " |
| 16×8 " " | 6 12 6 | " " |

### TILES.

| | s. d. | |
|---|---|---|
| Best plain red roofing tiles | 42 0 | per 1000, at rly depôt |
| Hip and Valley tiles | 3 7 | per doz. " |
| Best Broseley tiles | 50 0 | per 1000 " |
| Do. Ornamental tiles | 52 6 | " " |
| Hip and Valley tiles | 4 0 | per doz. " |
| Best Ruabon red, brown, or brindled do. (Edwards) | 57 6 | per 1000 " |
| Do. Ornamental do. | 60 0 | " " |
| Hip tiles | 4 . | per doz. " |
| Valley tiles | 3 0 | " " |
| Best Red or Mottled Staffordshire do. (Peakes) | 51 9 | per 1000 " |
| Do. Ornamental do. | 54 6 | " " |
| Hip tiles | 4 1 | per doz. " |
| Valley tiles | 3 8 | " " |
| Best "Rosemary" brand plain tiles | 48 0 | per 1000 " |
| Best Ornamental tiles | 50 0 | " " |
| Hip tiles | 4 0 | per doz. " |
| Valley tiles | 3 8 | " " |
| Best "Hartshill" brand plain tiles, sand-faced | 50 0 | per 1000 " |
| Do. pressed | 47 6 | " " |
| Do. Ornamental do. | 50 0 | " " |
| Hip tiles | 4 0 | per doz. " |
| Valley tiles | 3 6 | " " |
| Staffordshire (Hanley) Reds or Brindled tiles | 42 6 | per 1000 " |
| Hand-made sand-faced | 45 0 | " " |
| Hip tiles | 4 0 | per doz. " |
| Valley tiles | 3 6 | " " |

### WOOD.

| BUILDING WOOD. | At per standard. £ s. d. | £ s. d. |
|---|---|---|
| Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in. | 13 10 0 | ... 15 0 0 |
| Deals: best 3 by 9 | 13 0 0 | ... 14 0 0 |
| Battens: best 2½ in. by 7 in. and 3 in., and 3 in. by 7 in. and 8 in. | 11 0 0 | ... 12 0 0 |
| Battens: best 2½ by 6 and 3 by 6 | 0 10 0 | less than 7 in. and 8 in. |
| Deals: seconds | 1 0 0 | less than best. |
| Battens: seconds | 0 10 0 | " " |
| 2 in. by 4 in. and 2 in. by 6 in. | 9 0 0 | ... 10 0 0 |
| 2 in. by 4½ in. and 2 in. by 5 in. | 8 10 0 | ... 9 10 |
| Foreign Sawn Boards—1 in. and 1½ in. by 7 in. | 0 10 0 | more than battens. |
| ¾ in. | 1 0 0 | " |
| Fir timber: best middling Danzig or Memel (average specification) | At per load of 50 ft. 4 10 0 | ... 5 0 0 |
| Seconds | 4 0 0 | ... 4 10 0 |
| Small timber (8 in. to 10 in.) | 3 12 6 | ... 3 15 0 |
| Small timber (6 in. to 8 in.) | 3 0 0 | ... 3 10 0 |
| Swedish balks | 2 10 0 | ... 3 0 0 |
| Pitch-pine timber (30 ft. average) | 4 0 0 | ... 4 15 0 |

| JOINERS' WOOD. | At per standard. | |
|---|---|---|
| White Sea: first yellow deals, 3 in. by 11 in. | 24 0 0 | ... 25 0 0 |
| 3 in. by 9 in. | 22 0 0 | ... 23 0 0 |
| Battens, 2½ in. and 3 in. by 7 in. | 16 10 0 | ... 18 0 0 |
| Second yellow deals, 3 in. by 1 in. | 18 10 0 | ... 20 0 0 |
| " " 3 in. by 9 in. | 17 10 0 | ... 19 0 0 |
| Battens, 2½ in. and 3 in. by 7 in. | 13 10 0 | ... 14 10 0 |
| Third yellow deals, 3 in. by 11 in. and 9 in. | 13 10 0 | ... 15 0 0 |
| Battens, 2½ in. and 3 in. by 7 in. | 11 0 0 | ... 12 0 0 |
| Petersburg first yellow deals, 3 in. by 11 in. | 21 0 0 | ... 22 10 0 |
| Do. 3 in. by 9 in. | 18 0 0 | ... 19 10 0 |
| Battens | 13 10 0 | ... 15 0 0 |
| Second yellow deals, 3 in. by 11 in. | 16 0 0 | ... 17 0 0 |
| Do. 3 in. by 9 in. | 14 10 0 | ... 16 0 0 |
| Battens | 11 0 0 | ... 12 10 0 |
| Third yellow deals, 3 in. by 11 in. | 13 0 0 | ... 14 0 0 |
| Do. 3 in. by 9 in. | 12 10 0 | ... 14 0 0 |
| Battens | 10 0 0 | ... 11 0 0 |
| White Sea and Petersburg—First white deals, 3 in. by 11 in. | 14 10 0 | ... 15 10 0 |
| " " 3 in. by 9 in. | 13 10 0 | ... 14 10 0 |
| Battens | 11 0 0 | ... 12 0 0 |
| Second white deals, 3in. by 11 in. | 13 10 0 | ... 14 10 0 |
| " " 3 in. by 9 in. | 12 10 0 | ... 13 10 0 |
| Battens | 10 0 0 | ... 11 0 0 |
| Pitch-pine: deals | 18 0 0 | ... 21 0 0 |
| Under 2 in. thick extra | 0 10 0 | ... 1 0 0 |
| Yellow pine—First, regular sizes | 44 0 0 | upwards. |
| Oddments | 32 0 0 | " |
| Seconds, regular sizes | 33 0 0 | " |
| Oddments | 28 0 0 | " |
| Kauri Pine—Planks, per ft. cube | 0 3 6 | ... 0 5 0 |
| Danzig and Stettin Oak Logs—Large, per ft. cube | 0 3 0 | ... 0 3 9 |
| Small " " | 0 2 6 | ... 0 2 6 |
| Wainscot Oak Logs, per ft. cube | 0 5 6 | ... 0 6 0 |
| Dry Wainscot Oak, per ft. sup. as inch | 0 0 8½ | ... 0 0 9½ |
| ¾ in. do. do | 0 0 7 | ... — |
| Dry Mahogany—Honduras, Tabasco, per ft. super. as inch | 0 0 9 | ... 0 1 0 |
| Selected, Figury, per ft. super. as inch | 0 1 6 | ... 0 2 6 |
| Dry Walnut, American, per ft. super. as inch | 0 0 10 | ... 0 1 0 |
| Teak, per load | 17 0 0 | ... 22 0 0 |

### WOOD (*continued*).

| JOINERS' WOOD (*continued*)— | £ s. d. | | £ s. d. |
|---|---|---|---|
| American Whitewood Planks, per ft. cube | 0 4 0 | ... | 0 5 0 |
| | Per square. | | |
| Prepared Flooring, etc.— | | | |
| 1 in. by 7 in. yellow, planed and shot | 0 13 6 | ... | 0 17 0 |
| 1 in. by 7 in. yellow, planed and matched | 0 14 0 | ... | 0 18 0 |
| 1¼ in. by 7 in. yellow, planed and matched | 0 16 0 | ... | 1 0 0 |
| 1 in. by 7 in. white, planed and shot | 0 12 0 | ... | 0 14 6 |
| 1 in. by 7 in. white, planed and matched | 0 13 6 | ... | 0 15 0 |
| 1¼ in. by 7 in. white, planed and matched | 0 15 0 | ... | 0 16 6 |
| ¾ in. by 7 in. yellow, matched and beaded or V-jointed brds. | 0 11 0 | ... | 0 13 6 |
| 1 in. by 7 in. " " | 0 14 0 | ... | 0 18 0 |
| ¾ in. by 7 in. white " " | 0 10 0 | ... | 0 11 6 |
| 1 in. by 7 in. " " | 0 12 9 | ... | 0 15 0 |

6 in. at 6d. to 9d. per square less than 7 in.

### JOISTS, GIRDERS, &c.

| | In London, or delivered Railway Vans, per ton. £ s. d. | | £ s. d. |
|---|---|---|---|
| Rolled Steel Joists, ordinary sections | 7 0 0 | ... | 7 10 0 |
| Compound Girders, ordinary sections | 9 0 0 | ... | 10 0 0 |
| Steel Compound Stanchions | 11 0 0 | ... | 12 0 0 |
| Angles, Tees, and Channels, ordinary sections | 9 0 0 | ... | 10 0 0 |
| Fitch Plates | 9 0 0 | ... | 9 10 0 |
| Cast Iron Columns and Stanchions including ordinary patterns | 7 10 0 | ... | 8 10 0 |

### METALS.

| | Per ton, in London. £ s. d. | | £ s. d. |
|---|---|---|---|
| IRON— | | | |
| Common Bars | 8 10 0 | ... | 9 0 0 |
| Staffordshire Crown Bars, good merchant quality | 8 15 0 | ... | 9 5 0 |
| Staffordshire "Marked Bars" | 10 10 0 | ... | — |
| Mild Steel Bars | 8 15 0 | ... | 9 5 0 |
| Hoop Iron, basis price | 9 5 0 | ... | 9 10 0 |
| " " Galvanised | 17 0 0 | ... | — |
| ("And upwards, according to size and gauge.) | | | |
| Sheet Iron Black— | | | |
| Ordinary sizes to 20 g. | 9 15 0 | ... | — |
| " " 24 g. | 10 15 0 | ... | — |
| " " 26 g. | 12 5 0 | ... | — |
| Sheet Iron, Galvanised, flat, ordinary quality— | | | |
| Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g. | 15 0 0 | ... | — |
| Ordinary sizes to 22 g. and 24 g. | 15 10 0 | ... | — |
| " " 26 g. | 16 10 0 | ... | — |
| Sheet Iron, Galvanised, flat, best quality— | | | |
| Ordinary sizes to 20 g. | 18 0 0 | ... | — |
| " " 22 g. and 24 g. | 18 10 0 | ... | — |
| " " 26 g. | 20 0 0 | ... | — |
| Galvanised Corrugated Sheets— | | | |
| Ordinary sizes, 6 ft. to 8 ft. 20 g. | 14 10 0 | ... | — |
| " " 22 g. and 24 g. | 14 15 0 | ... | — |
| " " 26 g. | 16 5 0 | ... | — |
| Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker | 12 0 0 | ... | — |
| Best Soft Steel Sheets, 22 g. & 24 g. | 13 0 0 | ... | — |
| " " " 26 g. | 15 0 0 | ... | — |
| (In Rolls, 3 in. to 6 in. | 10 10 0 | ... | 11 0 0 |
| (Under 3 in., usual trade extras.) | | | |

| LEAD, &c. | Per ton, in London £ s. d. | | £ s. d. |
|---|---|---|---|
| LEAD—Sheet, English, 3lb. and up. | 16 2 6 | ... | — |
| Pipe in coils | 16 12 6 | ... | — |
| Foil pipe | 19 2 6 | ... | — |
| Compo pipe | 20 2 6 | ... | — |
| ZINC—Sheet— | | | |
| Vieille Montagne ton | 27 5 0 | ... | — |
| Silesian | 27 0 0 | ... | — |
| COPPER— | | | |
| Strong Sheet per lb. | 0 1 0 | ... | — |
| Thin " | 0 1 1 | ... | — |
| Copper nails " | 0 0 10 | ... | — |
| Copper wire " | 0 0 10 | ... | — |
| BRASS— | | | |
| Strong Sheet " | 0 0 11 | ... | — |
| Thin " | 0 1 0 | ... | — |
| TIN—English Ingots " | 0 1 4½ | ... | — |
| SOLDER—Plumbers' " | 0 0 7 | ... | — |
| Tinmen's " | 0 0 9½ | ... | — |
| Blowpipe " | 0 0 11½ | ... | — |

### ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES

| | |
|---|---|
| 15 oz. thirds | 2½d. per ft. delivered. |
| " fourths | 1½d. " " |
| 21 oz. thirds | 3d. " " |
| " fourths | 2½d. " " |
| 26 oz. thirds | 4d. " " |
| " fourths | 3d. " " |
| 32 oz. thirds | 4½d. " " |
| " fourths | 4d. " " |
| Fluted Sheet, 15 oz. | 3½d. " " |
| " 21 oz. | 4½d. " " |

### ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

| | |
|---|---|
| Hartley's | 2½d. per ft. delivered. |
| " | 2½d. " " |
| " | 2½d. " " |
| Figured, Oxford Rolled, and "Opaque" glass, white | 3½d. " " |
| " " tinted | 5½d. " " |
| OTHER GLASS— | |
| "Arctic" glass, white | 4d. " " |
| " " tinted | 5½d. " " |
| " " ruby and opalescents | 1s. " " |

| OILS, &c. | | £ s. d. |
|---|---|---|
| Raw Linseed Oil in pipes | per gallon | 0 2 0 |
| " " " in barrels | " | 0 2 1 |
| " " " in drums | " | 0 2 3 |
| Boiled " " in pipes | " | 0 2 2 |
| " " " in barrels | " | 0 2 3 |
| " " " in drums | " | 0 2 5 |
| Turpentine in barrels | " | 0 2 5 |
| " in drums | " | 0 2 8 |
| Genuine Ground English White Lead | per ton | 21 0 0 |
| Red Lead, Dry | " | 20 0 0 |
| Best Linseed Oil Putty | per cwt. | 0 2 0 |
| Stockholm Tar | per barrel | 1 12 0 |

### VARNISHES, &c.

| | Per gallon. £ s. d. |
|---|---|
| Fine Pale Oak Varnish | 0 8 0 |
| Pale Copal Oak | 0 10 6 |
| Superfine Pale Elastic Oak | 0 12 6 |
| Fine Extra Hard Church Oak | 0 10 0 |
| Superfine Hard-drying Oak, for seats of Churches | 0 14 6 |
| Fine Elastic Carriage | 0 12 0 |
| Superfine Pale Elastic Carriage | 0 16 0 |
| Fine Pale Maple | 0 16 0 |
| Finest Pale Durable Copal | 0 18 0 |
| Extra Pale French Oil | 1 1 0 |
| Eggshell Flatting Varnish | 0 18 0 |
| White Copal Enamel | 1 4 0 |
| Extra Pale Paper | 0 12 0 |
| Best Japan Gold Size | 0 10 6 |
| Best Black Japan | 0 16 0 |
| Oak and Mahogany Stain | 0 9 0 |
| Brunswick Black | 0 8 0 |
| Berlin Black | 0 16 0 |
| Knotting | 0 10 9 |
| French and Brush Polish | 0 10 6 |

## TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcement of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

**ADDERBURY**, near Banbury.—For alterations and additions to private residence. Mr. A. Edward Allen, architect, 31A, Bridge-street, Banbury:—

| | |
|---|---|
| H. George | £211 0 |
| A. Bray, Adderbury* | 188 10 |

**ANNFIELD PLAIN.**—For alteration to stables and general repairs, for Annfield Plain Industrial Co-operative Society. Mr. G. T. Wilson, architect, 22, Durham-road, Blackhill:—

| | |
|---|---|
| Dunn & Lee, Annfield Plain | £160 15 0 |

**BARNSLEY.**—For the erection and completion of a pair of villas, Kensington-road, Barnsley, for Mrs. Thos. Fox. Mr. W. Leonard Dowton, architect, Bank-chambers, Bedford-row, W.C.:—

| | |
|---|---|
| W. Robinson & Son, Doncaster-road, Barnsley | £1,150 |

**BECKENHAM.**—For corrugated iron van and cart shed, for the Urban District Council. Mr. J. A. Angell, Surveyor, Beckenham:—

| | | | |
|---|---|---|---|
| W. E. Barnes | £270 0 0 | Somerville & Co. | £195 0 0 |
| T. E. Wright | 252 0 0 | Hill & Smith | £190 0 0 / £180 0 0 |
| W. Foster & Son | 232 0 0 | J. Bellamy, Ltd. | 189 5 0 |
| Chalkley & Co. | 226 7 3 | W. Harbrow | 170 10 0 |
| Cadogan Iron Works | 210 10 0 | Cross & Cross | 169 0 0 |
| Drew, Bear, Perks, & Co. | 210 0 0 | W. F. Blay | 164 0 0 |
| Harrison & Co. | 205 0 0 | Norton Bros. & Co., Ilford* | 157 10 0 |
| W. J. Mullings | 197 11 0 | | |

**BLYTH.**—For re-kerbing, flagging, and channelling part of Waterloo-road, and for 300 lin. yds. of kerb in Morpeth-road, for the Urban District Council. Mr. R. Grieves, Surveyor to the Council:—

*Flagging, Kerbing, and Channelling portion of Waterloo-road.*

| | | | |
|---|---|---|---|
| G. E. Simpson | £146 8 7 | M. McKinnon, Newcastle-on-Tyne* | £100 7 2 |
| J. Robson | 106 18 4 | J. Murphy | 22 5 11 |

*Kerbing Main-road Footpath.*

| | | | |
|---|---|---|---|
| J. Murphy | £91 9 6 | M. McKinnon, Newcastle-on-Tyne* | £63 19 6 |
| G. E. Simpson | 68 9 6 | | |
| J. Robson | 64 7 0 | | |

**BRENTFORD.**—For additional sanitary accommodation at the Workhouse, for the Guardians:—

| | | | |
|---|---|---|---|
| J. S. Selway & Co. | £442 5 6 | C. Wall, Ltd. | £362 0 0 |
| Perton & Co. | 442 0 0 | F. D. Hidden, Brentford* | 336 11 10 |
| W. J. Dickens | 370 0 0 | | |
| J. Daws & Co. | 368 0 0 | | |

**BRENTFORD.**—For reconstruction of drainage of portion of Union Offices and for other works, for the Guardians:—

| | | | |
|---|---|---|---|
| J. S. Selway & Co. | £250 | W. J. Dickens, Ealing* | £170 |
| F. D. Hidden | 190 | Perton & Co. | 172 |
| W. Parker & J. Colbourn | 180 | | |

**CATERHAM HILL.**—For additions to Caterham Hill boys' Council school. Messrs. Jarvis & Richards, architects, 10, Queen Anne's-gate, Westminster, S.W.:—

| | |
|---|---|
| Mitchell Bros. | £9,700 0 0 |
| J. Burges & Sons | 3,656 0 0 |
| Martin, Wells, & Co., Ltd. | 3,485 0 0 |
| Goddard & Sons | 3,379 0 0 |
| T. J. Hawkins & Co. | 3,293 4 10 |
| Risby & Mitchell | 3,283 19 4 |
| G. Kemp | 3,247 0 0 |
| D. Waller | 3,200 0 0 |
| W. Wallis* | 2,991 0 0 |

**CHELTENHAM.**—For alterations and additions to No. 89, High-street, for the Gloucester Co-operative Society. Mr. T. Malvern, architect, 21, Winchcombe-street, Cheltenham:—

| | | | |
|---|---|---|---|
| W. T. Nicholls | £875 0 | G. Loveday | £740 15 |
| A. Wilson | 845 0 | Collins & Godfrey Tewkesbury* | 697 0 |
| A. Middleton | 805 18 | Cornock & Penny | 685 0 |
| P. C. Cousins | 793 10 | Mealing & Co.‡ | 596 5 |
| J. Simmonds | 745 0 | | |

‡ Withdrawn.

**CHICHESTER.**—For repairs to Dell Quay, Chichester Harbour, for the Corporation. Mr. F. J. Lobley, City Surveyor, Iden-street, Chichester:—

| | |
|---|---|
| F. Grace, Southampton* | £257 10 0 |

**DEBDEN.**—For the erection of a Rectory House at Debden, Essex. Mr. Henry F. Traylen, architect, Stamford and London:—

| | | | |
|---|---|---|---|
| J. A. Hunt | £2,995 0 | J. H. Staines | £2,594 10 |
| Rudd & Son | 2,890 0 | J. Custerson | 2,526 0 |
| S. F. Halliday | 2,764 10 | J. Willmott & Sons | 2,438 0 |
| J. L. Glascock & Son | 2,606 0 | W. Bell & Sons* | 2,320 0 |

[Architect's estimate, comparable with lowest tender, £2,390.]

**DULVERTON.**—For proposed cottage, "Sheltons," Dulverton, for Mr. F. Quick. Mr. F. W. Roberts, F.R.I.B.A., architect, Taunton:—

| | | | |
|---|---|---|---|
| R. Newton | £397 15 0 | G. B. Fisher & Son, Dulverton* | £305 0 0 |
| Sanders & Son | 380 0 0 | | |
| B. T. Cottrell | 330 0 0 | | |

**GRAVESEND.** — For painting, repairs, etc., at Technical Institute, for Kent Education Committee. (Gravesend Higher Education Sub-Committee):—

| | |
|---|---|
| A. E. Tong | £148 10 0 |
| S. G. Allen & Son, Harmer-road, Gravesend* | 89 0 0 |

**ISLE OF WIGHT.**—For outside painting at the Royal Isle of Wight County Hospital and Convalescent Home, for the Committee:—

| | | | |
|---|---|---|---|
| Udall & Co. | £80 0 0 | Snellgrove & Son | £59 10 0 |
| P. McCarthy | 75 0 0 | G. H. Gallienne | 47 5 0 |
| Hoile & Co. | 67 9 3 | W. A. Dallimore, Ryde* | 45 0 0 |
| A. Verdon | 61 5 0 | | |
| T. Raddon | 62 17 6 | | |

**ITCHINGFIELD.**—For alterations and additions to council school, for West Sussex and Chichester Joint Education Committee. Mr. Hadyn P. Roberts, County Education Architect, Horsham. Quantities by Architect:—

| | | | |
|---|---|---|---|
| Potter Bros. | £1,333 | H. Baker | £1,144 |
| G. Potter | 1,283 | W. Potter | 1,129 |
| W. Willett | 1,230 | Hilman & Murrell | 1,116 |
| Rowland Bros. | 1,226 | Peskett & Co., Crawley* | 1,070 |
| A. Parker | 1,199 | | |
| Lindfield & Son | 1,158 | | |

[Architect's estimate, £1,140.]

**KEIGHLEY** (Yorks.).—Accepted for erecting two houses, Skipton-road. Messrs. J. Haggas & Sons, architects, North-street, Keighley:—

*Mason:* F. Waterhouse, Drewry-road, Keighley
*Joiners:* A. & J. E. Hartley, Sandywood, Keighley
*Slaters:* W. H. & E. Walton, Bingley — £627 17 5
*Plasterers:* C. & D. Antrum, Oakworth-road, Keighley
*Plumber:* T. Woodhine, Skipton-road, Keighley

**KIVETON PARK.**—For Dinnington sewerage and sewage disposal works, for the Kiveton-park Rural District Council. Messrs. Berrington, Son, & Watney, Engineers, Bank-buildings, Lichfield-street, Wolverhampton, and at Westminster:—

| | | | |
|---|---|---|---|
| S. Johnson & Sons | £13,500 0 0 | | |
| W. Whiting Bateman | 12,597 2 9 | | |
| Ward & Tetley | 11,450 11 5 | | |
| Pinder Bros. | 11,329 0 0 | | |
| J. H. Macdonald | 10,610 0 0 | | |
| F. Mitchell & Son | 10,597 16 0 | | |
| Waring & Sons | 10,300 0 0 | | |
| R. C. Crawford, Uddingston* | 10,250 0 0 | | |

**LETCHWORTH** (Herts).—Pair of semi-detached cottages, for Mr. J. Walton. Messrs. Underwood & Kent, architects:—

| | | | |
|---|---|---|---|
| Beckley & Turpie | £615 | A. E. Jeffs, Letchworth* | £560 |
| Jermyn & Hall | 615 | G. W. Souster | 539 |
| A. J. Hope | 615 | | |
| A. Ellis | 590 | | |

**LLANFRECHFA UPPER.**—For laying 600 yds. of 5-in. water main between Oakfield and Cwmbran, for the Urban District Council. Mr. G. Jones, Waterworks Superintendent, Richmond-road, Pontnewydd, Newport, Mon.:—

| | | | |
|---|---|---|---|
| Bearen & Sons, Ltd. | £234 12 3 | R. Partridge | £230 0 |
| Poulton & Whiting | 235 0 0 | R. Macnab, Newport, Mon.* | 217 10 |

**LONDON.**—For National Gallery extension—superstructure, for the Commissioners of H.M. Works and Public Buildings:—

| | | | |
|---|---|---|---|
| G. Godson & Sons | £21,584 | J. Dorey & Co., Ltd. | £19,250 |
| W. Downs | 21,570 | Holliday & Greenwood, Ltd. | 18,900 |
| W. H. Lorden & Son | 21,000 | J. Mowlem & Co. | 18,825 |
| Higgs & Hill, Ltd. | 20,900 | Foster & Dicksee | 18,660 |
| J. Chessum & Sons | 20,961 | Perry & Co. | 18,562 |
| Leslie & Co., Ltd. | 20,931 | J. Smith & Sons, Ltd. | 18,550 |
| Stephens, Bastow & Co. | 20,785 | Lawrance & Sons | 18,371 |
| H. L. Holloway | 20,681 | Holloway Bros. | 18,200 |
| B. E. Nightingale | 20,453 | J. Allen & Sons, Ltd. | 17,598 |
| Spencer, Santo & Co. | 19,957 | F. & H. F. Higgs | 15,979 |
| C. Wall, Ltd. | 19,671 | | |

**LONDON.**—For excavating a site and putting in the foundations of the Artisans' Dwellings in Liverpool-road, Islington N., for the Trustees of the estate of the late Mr. Samuel Lewis. Messrs. Joseph & Smithem, architects, 83, Queen-street, Cheapside. Quantities prepared by Mr. C. Latter, 14, Great James-street, Bedford-row, W.C.:—

| | | | |
|---|---|---|---|
| Higgs & Hill | £4,944 | Patman & Fotheringham | £4,723 |
| H. L. Holloway | 4,937 | W. Shepherd | 4,683 |
| Holloway Bros. | 4,897 | C. Wall, Ltd. | 4,640 |
| J. Simmons & Son | 4,875 | Dove Bros. | 4,575 |
| Lascelles & Co. | 4,785 | C. F. Kearley* | 4,402 |
| F. G. Minter | 4,779 | | |
| Wallis & Son | 4,743 | | |

**NEW HERRINGTON.**—For the erection of two cottages, for New Herrington Workmen's Club. Mr. Jas. Pallister, architect, Philadelphia, Fencehouses, Co. Durham. Quantities by architect:—

| | | | |
|---|---|---|---|
| Thornby Bros. | £910 0 | J. Harrison | £589 0 |
| J. Liddle | 653 0 | H. Wilson | 510 0 |
| G. Wardroper | 597 10 | M. Brown | 495 0 |
| W. Rutherford | 585 0 | J. W. Downing, Sunderland | 95 0 |
| C. H. Pace | 583 0 | | |

NEW MILLS.—For 325 yds. of iron fencing, etc., for Urban District Council. Mr. Wm. C. Sheard, surveyor:—J. Higginbottom, Hyde Bank, New Mills* .... £112 8 6

NORBITON (Surrey).—For new buildings at Norbiton Common Farm, and alterations and additions to isolation wards of infirmary, for Kingston-on-Thames Guardians. Mr. W. H. Hope, Architect, 12, Clarence-street, Kingston-on-Thames:—

| | New Buildings. | Additions and Alterations. |
|---|---|---|
| H. Coombes | £8,823 0 0 | .... £45 15 9 |
| J. Harrison & Co. | 8,672 0 0 | .... 28 2 5 |
| Drowley & Co. | 8,152 0 0 | .... 406 4 0 |
| F. Deacon | 7,964 1 1 | .... 389 0 0 |
| Oldridge & Sons | 7,597 0 0 | .... 425 0 0 |
| A. M. Coles | 7,375 1 5 | .... 449 3 0 |
| W. Harbrow | 7,167 8 5 | .... 379 0 0 |
| Jarman, Dawes, & Co. | 6,995 0 0 | .... 389 0 0 |
| Goddard & Sons | 6,953 0 0 | .... 391 0 0 |
| Hawkins & Co. | 6,934 4 0 | .... 350 0 0 |
| Nightingale & Co. | 6,896 0 0 | .... 347 0 0 |
| McCarthy E. Fitt & Co., 118, Oxford-road, Reading* | 6,750 0 0 | .... 357 0 0 |
| L. J. Adams & Co.‡ | 6,600 0 0 | .... 359 12 0 |

‡ Informal.

NORTH TAWTON (Devon).—For new farm buildings at South Week, for Mr. Silvanus Webber. Mr. Wm. Barrons, surveyor, Tiverton:

| | | | |
|---|---|---|---|
| H. Honeychurch | £676 5 | W. Ash, Sampford Courtenay* | £422 10 |
| S. Ellis & Son | 528 10 | | |

NORTHWOOD.—For sewer work in Sharp's-lane, for Ruislip-Northwood Urban District Council. Mr. W. L. Carr, Surveyor:—

| | |
|---|---|
| T. Free & Sons | £1,071 1 3 |
| W. Neave & Son | 1,065 1 3 |
| J. A. Ewart | 1,061 19 11 |
| T. Watson jun. | 1,058 5 7 |
| A. M. Macdonald | 990 14 8 |
| C. W. Killingback | 977 18 0 |
| W. T. Wilson | 968 12 6 |
| G. G. Raynes | 965 4 4 |
| A. F. Lee | 946 0 0 |
| R. C. Grebner | 913 14 7 |
| Langley & Johnson | 906 14 3 |
| F. G. Brummell | 901 3 2 |
| G. R. Mann, Edgware S.O., Middlesex* | 900 0 0 |

NORTHWOOD.—For making-up of Highfields-road (in three contracts), for Ruislip-Northwood Urban District Council. Mr. W. L. Carr, Surveyor:—

| | Contract 1. | Contract 2. | Contract 3. |
|---|---|---|---|
| Langley & Johnson* | £573 2 5 | £191 6 10 | £66 13 6 |

NOTTINGHAM.—For alterations and additions to St. Augustine's Church, New Basford, Messrs. A. R. Calvert & William R. Gleave, A.R.I.B.A., architects:—
G. Hopewell & Son* ..... £516
[Lowest of six tenders.]

NOTTINGHAM.—For alterations and additions to the Old Moot Hall, Nottingham, Messrs. A. R. Calvert & William R. Gleave, A.R.I.B.A., architects:—
W. Barlow & Co.* ..... £272
[Lowest of three tenders.]

NOTTINGHAM.—For alterations and additions to No. 7, Magdala-road, Nottingham. Messrs. A. R. Calvert & William R. Gleave, A.R.I.B.A., architects:—
G. T. Lovett* ..... £694
[Lowest of six tenders.]

RAINHAM.—For erection of an enlargement to provide additional accommodation for 150 scholars to the Council School at Rainham, Kent, for Kent Education Committee. Mr. G. E. Bond, architect, High-street, Rochester:—

| | | Credit. |
|---|---|---|
| G. H. Denne & Sons | £1,030 0 0 | £4 0 0 |
| G. Browning | 989 0 0 | 3 0 0 |
| G. W. Ellingham | 970 0 0 | 10 0 0 |
| Strange & Sons, Ltd. | 916 7 0 | 10 17 0 |
| J. Lonsdale | 892 0 0 | 7 0 0 |
| T. Cornelius & Son | 879 0 0 | — |
| G. Baker & Son | 834 0 0 | 5 0 0 |
| L. Seager | 807 0 0 | 12 0 0 |
| H. E. Phillips | 789 0 0 | — |
| Kemp Bros., Rainham* | 788 0 0 | 10 0 0 |
| T. Monk | 785 0 0 | 10 0 0 |
| J. A. Davidson | 785 0 0 | 11 8 0 |
| C. E. Skinner | 775 0 9 | 11 14 0 |

PENARTH.—For private street improvement works, Victoria-road, for the Urban District Council. Mr. E. I. Evans, A.M.Inst.C.E., Council Offices, Penarth:—

| | |
|---|---|
| Mackay & Davies | £1,833 8 7 |
| R. Rankin | 1,562 11 0 |
| T. R. Williams | 1,514 4 4 |
| G. Morgan, Pontypridd, Glam.* | 1,419 10 2 |

[Surveyor's estimate, £1,540.]

ROMFORD.—For the erection of new boardroom offices, receiving wards, and infirm wards, for the Board of Guardians. Mr. H. Harrington, architect, 65, Bishopsgate-street Without, E.C. Quantities by Mr. H. W. Simpson, Caxton House, Westminster:—

| | |
|---|---|
| B. E. Nightingale | £13,270 0 0 |
| Abbots & Charlton | 13,064 7 4 |
| R. & R. H. Davey | 12,725 0 0 |
| F. & E. Davey | 12,573 0 0 |
| Hawkie & Oldman | 12,323 0 0 |
| Spencer, Santo, & Co. | 12,281 3 0 |
| Clements Bros. | 12,234 10 0 |
| T. Webster & Sons | 12,147 0 0 |
| J. Cracknell | 12,071 5 9 |
| Chesham & Sons | 11,997 0 0 |
| J. W. Jerram | 11,986 0 0 |
| F. J. Coxhead | 11,975 0 0 |
| F. & A. Willmott | 11,943 0 0 |
| Pattinson & Sons | 11,936 0 0 |
| W. J. Fryer & Co. | 11,886 0 0 |
| W. Lawrence & Sons | 11,864 0 0 |
| Pavitt & Sons | 11,623 11 6 |
| Dowsing & Davis | 11,533 0 0 |
| Hammond & Sons | 11,521 0 0 |
| Myhall & Upson | 11,486 5 0 |

ST. STEPHEN'S-IN-BRANWELL.—For building a reservoir (100 000 gallons), trenching, etc., at Stennagwyn, near Foxhole, for Mr. J. B. Fortesque. Mr. T. H. Andrew engineer, Market-hill, St. Austell:—

| | | | |
|---|---|---|---|
| E. J. Lester | £1,015 0 | Steer & Pearce, Plymouth* | £538 0 |
| F. J. Stanbury | 597 0 | J. H. Mitchell | 513 19 |
| Luke & Angilley | 595 0 | | |
| J. Budge | 588 16 | | |

TAUNTON.—For redecorating, painting, colouring, etc., Chapel and Sunday school class-rooms, etc., for the Deacons of the Silver-street Baptist Chapel. Mr. F. W. Roberts, F.R.I.B.A., 2, Hammet-street, Taunton:—

| | | | |
|---|---|---|---|
| H. M. Ward | £156 2 6 | W. Potter | £138 11 0 |
| A. J. Vickery | 155 11 0 | T. A. Jarman | 134 7 6 |
| T. J. Serle & Son | 142 10 0 | Hartnell & Son | 125 3 0 |
| Booich & Shattock | 140 0 0 | Macey & Sons | 121 0 0 |
| Stansell & Son, Taunton* | 139 0 0 | Dyer & Son | 65 0 0 |

WESTMEATH.—For building an operation ward at Infirmary, for the Joint Committee of management. Mr. A. E. Joyce, C.E., County Surveyor:—

| | |
|---|---|
| C. Doyle | £225 |
| Willis Bros., Mullingar* | 178 |


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